
Information Systems in Use: A Representational Perspective

Carole Brooke. Tamara : Journal of Critical Postmodern Organization Science. Las Cruces: 2001. Vol. 1, Iss. 3; pg. 39-52, 14 pgs

Abstract (Article Summary)

This paper looks at a theoretical framework recently developed by Paul Jackson (1997) that adopts the information systems metaphor as a means to understand the representational aspects of organisation. Jackson's approach particularly highlights the role of information systems (IS) in the representation of space and time and the depolitization of organisational space and time. However, this paper suggests that the framework can be improved even further, especially through a fuller consideration of the works of Cooper (1992) on displacement, abbreviation and remote control, and Zuboff (1988) on the concept of 'informaté'.

After the modified framework is presented, it is then illustrated by reference to an empirical piece of research undertaken within a major UK business (referred to as CallCentre). The research focuses on problems encountered within a call centre structure where information systems are being applied to automate many of the processes involved in servicing customers. One of the major issues emerging from the analysis is the value of creating representational space within which stakeholders can negotiate meanings. It is suggested that this activity will present a significant challenge to the dominant ideology of managerial control.

Full Text (7,545words)

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INTRODUCTION

This study looks at a theoretical framework recently developed by Paul Jackson (1997) that adopts the information systems metaphor as a means to understand the representational aspects of organisation. Building on the work of Cooper and Zuboff, Jackson has argued that the framework makes a very useful contribution to analysis, particularly in highlighting the representational nature of information systems in use. However, research suggests that the framework can be improved even further.

Some modifications to the framework are made within this text in order to extend its analytical power. These modifications refer to the work of several writers, especially Cooper's notions of displacement, abbreviation, and remote control (Cooper, 1992) and a fuller consideration of Zuboff's concept of 'informaté'. The modified framework is then explored by reference to empirical material gathered during a research project conducted at CallCentre in the UK.

Both Jackson and Cooper have written about the usefulness of representational approaches to organisational analysis and all three writers (Jackson, Cooper and Zuboff) are closely related in terms of how they see the role of structure or technology in creating situations of dependence and/or 'uselessness' on the part of subjects. If we accept for the moment that this is the case, then how can we encourage situations where subjects take charge of their own lives? The modified framework offers a useful analytical tool to address this question.

In reflecting on the analysis of a situation at CallCentre, one of the major issues to emerge is the value of creating representational space within which stakeholders can negotiate meanings. It is suggested that this activity will present a significant challenge to the dominant ideology of managerial control.

JACKSON'S FRAMEWORK

Jackson's notion of an 'information system' is proposed as a metaphor for understanding organizational forms, especially with respect to issues of virtuality. He takes a constructivist approach and attempts to avoid technological determinism when thinking about future work scenarios. Instead, his analysis concentrates on the way information systems are represented and the interpretive and rhetorical structures of technological innovation.

Jackson's analysis looks at the way information systems are represented, that is the way they are brought into being through the construction of interpretive and rhetorical structures. His approach argues that information systems do not of themselves lead to particular outcomes or forms of organisation. This means virtual working and virtual organisation are not inevitable either. The way technology is applied depends on which issues and values are constructed and prioritised. This is not a new argument. However, the representational viewpoint highlights the mediating role of individuals in the acts of construction and prioritisation and thereby exposes the social, political and economic bases of many information systems-related decisions within organizations that might not otherwise be exposed or scrutinised. These issues have been recognized even in the more 'traditional' literature on systems information systems design. For example, Baskerville has noted that:

"It appears that the old end user tension between central control and innovation has reappeared in the intranet world. [Information technology] has been converted to a cultural commodity, and the video screen is becoming the central means for discovering our relevance to our universe. The papers suggest the surprising ways that machines have acquired human status, not through robotics, but rather through social construction, and that new norms are appearing which redefine the relationships and exchanges between human beings and computers. For example, gender can define IS success and web design can define social relationships. Not surprisingly, systems must now be developed interpretively, rather than through rational-technical IS design principles used in the last century." (Richard Baskerville, Program Co-Chair and Past-Chair IFIP WG8.2, Oasis, Volume 34, Issue 1, June 2000 p3.)

Jackson challenges how we understand the physical and temporal dimensions of organizations and uses three analytical lenses to achieve his objectives:

- Ø the representation of information technology (IT) as a space-transcending technology (IT can overcome geographical 'barriers');
- Ø the role of IT in providing representation for work tasks to be mediated electronically (symbols replace face-to-face contact, for example);
- Ø the representation of organisational time and space in certain IT-related concepts (for instance, organisational space is depoliticised and effectively diminished at the individual level whilst at global levels the stakes are raised).

Jackson argues that if information systems alter social processes then they impact on the *representation of space and time*. He elaborates his arguments by reference to the following aspects:

- Ø material space (interactions across material space such as social interactions);
- Ø signs and significations (that which enables spatial practices to be understood);
- Ø representational space (intellectual creations and spatial discourses in which new meanings for space can be constructed).

Perhaps the most important point he makes here is that power over representation is as important as power over material practices. A simple example of the issues involved is the organisation's understanding of what constitutes normal working practice, such as working hours. Less obvious are the politics and power relationships involved in the notion of what constitutes a workplace. The creation of virtual organisation diminishes the role of the social construction and negotiation of temporal and spatial norms. The workplace becomes ever more defined in economic terms rather than as a socially constituted experience. The phrase 'going to work' now holds less, or a different, meaning for many people.

Representational space is crucial since it is here that norms and meanings are constructed. If individuals are denied representational space then their power to engage in the construction and interpretation of signs and significations within the organisation is undermined or removed. They become little more than robots responding to the formalised and centralised norms created by others and presented to them by remote control. This may be a dismal view, but it at least provokes further analysis. Which discourse dominates the organisation will be critical to determining what is seen as the most persuasive representation of IT. To say it again, the technology does not of itself lead to particular organizational strategies.

Where work interactions and transactions are mediated through 'cyberspace', a

closer and more critical look at information systems and representation becomes vital. Where power relations are concerned, crucial organizational consequences may follow. Jackson refers to the work carried out by Zuboff (1988), Cooper (1992) and others, noting the contribution of their ideas to his own analytical framework. He presents his framework as a means to conduct an analysis of modern organizational forms, especially where virtuality or teleworking have been introduced.

Of the many assumptions that may underpin the cyberspace discourse, one of the most fundamental is the assumption that what takes place within an organisation *can* be digitised and represented electronically. This point, raised by Jackson, does not seem to have been much challenged in literature or practice. Further, a cyberspace discourse views work itself as devoid of space and time. All of this paves the way for further changes in working practice, products, and markets, but presumably without much opportunity for the majority of stakeholders to influence change or to engage in the construction of representational space.

MOVING BEYOND THE 'GAZE'

Information systems (IS) can be viewed not only as an instrument or a technology that can be used to control staff from a distance, they can also be seen as having at least two other impacts. First, they can embody the effects of control and manageability and at the same time intensify them. That is, the effects of management control are promulgated through the introduction and use of IS. Second, IS can be used as a mechanism that facilitates the exercise of power amongst the various actors in an organisation. Both Zuboff and Foucault have discussed these tendencies of technology. In particular, the concept of panopticon has been used to describe the way technology operates to control, manage and facilitate interactions between different stakeholders.

Foucault has argued that it is not necessary for actors to be fully aware of the strength and capacity of the panopticon within which they operate (Foucault, 1977). He argues that certain aspects of power are visible but unverifiable. The unverifiable nature of power means that there is no way that stakeholders in the organisation can understand the intensity or amount of power employed in the technology. Foucault does not illustrate the possibility for 'prisoners' and 'governors' to communicate in the presence of the new technology that has been instituted. It is the 'outsider' (for example, a researcher) who is in a better position for a 'gaze'. This view is problematic.

Foucault's position has been criticized because it does not provide an opportunity for the stakeholders to verify the intensity and impact of their interactions. It gives more opportunity to an 'outsider' (if there is such a thing) to see how the technology can control the actors during interactions than the stakeholders themselves to understand the impact of their interactions.

Jackson takes more of an optimistic stance in that he believes panopticon can have a transformative effect at the individual level. To this extent he goes beyond Foucault, Zuboff and Cooper who effectively see the technology mainly as a tool for

managers to control and manage staff. Jackson pushes beyond this dissectivecohesive thinking to suggest that it can also be viewed as a way of 'seeing' the impact that a 'system' has on ourselves and on others. This has the effect that neither Foucault's 'gazer' nor the 'observed' are in control or being controlled. In short, the aim is to organise technology so that everybody can be provided with the 'all-seeing power' of the panoptic organisation (de Certeau, 1984).

MODIFICATIONS TO THE ANALYTICAL FRAMEWORK

Jackson speaks of a *space-transcending technology*. This is a particularly persuasive view if one regards information technology primarily as a means of processing and communicating *information*. From such a viewpoint it is easy to assume that work organisation can be focused around what the technology can do, since its ability to transmit information rapidly across vast distances is taken for granted. Set aside for the moment the important distinctions that could be made between information and data (Brooke, 1994). If we only recognise that technology is text itself embedded in and constituted by their interpretive contexts, then we can see that such assumptions can be stood on their heads. Rather, it is the interpretive context that constitutes the technology, not vice versa. This argument also extends to the constitution of *self*. As Foucault and others have argued, self is a subjective construction and the technology of self centres on the way in which an individual participates in the creation of their own behaviour (Milanzi, 2001). The focus of analysis, therefore, should be on how contexts come about and not on technology or its configurations per se.

The role of information systems in providing *representation for work tasks to be mediated electronically* is possibly nowhere better illustrated than in Zuboff's book "In the Age of the Smart Machine" (Zuboff, 1988). Her concept of informing refers to the process whereby electronically mediated work is rendered more transparent more of the time. She shows how organizations are the management of electronic texts. In particular, she refers to the notion of panopticon, a situation rendered possible by the way technology is applied. Management use the technology to observe individual work performance from a distance in a way that enables it to be made more manageable and controllable. As Cooper has indicated:

"It is exactly these functions that representation makes possible: technologies of representation convert the inaccessible, unknown and private into the accessible, known and public.... Transparency and visibility in two-dimensional media become significant factors in management by formalization. As Zuboff shows, these factors become exaggerated with the introduction of information technology." (Cooper, 1992, pp. 267 - 268)

Three representational concepts from Cooper's work can be used to extend Jackson's analytical framework in order to evaluate information systems. These three concepts are remote control, displacement and abbreviation (Cooper, 1992). Remote control refers to the displacement of the (unfamiliar) outside to become the inside (and familiar). Abbreviation refers to the displacement of the outside into the inside in such a way that it

becomes more compact and manageable. By definition, abbreviation tends to reduce detail and simplify.

Jackson discusses the separation of data from programs that in turn leads to the separation from the individual of control over interpretation and manipulation of data. Control is placed with those who have the power to manipulate organizational cyberspace. Remote control refers to the way in which traditional management approaches seek to increase formalisation and centralization in order to 'bring the outside inside' and make that which is at a distance more proximal and easier to manage whilst still keeping it at a distance. Taking an information systems perspective, we can see that it is not only programs but also content (data) which is formalised and centralised. Thus, the interpretive processes that individuals undertake in engaging with their work can be radically transformed. What view is taken of the technology will depend on the particular discourse. Changes might have positive benefits for some individuals but more often than not such prior evaluation never takes place (e.g. see case study of an email system by Mueller, 1991). More commonly, a course of action is presumed appropriate (virtual capability = reduced costs, time and increased efficiency) and *hey presto* the dominant rationale ensures that remote control becomes virtually automatic.

The dominant management approach tends to be positivist, objectivist and adopts a resource-based view of the world (the latter is particularly evident from the field of strategic management). In so far as interpretative events are ever considered, they are usually couched in highly prescriptive terms. For instance, in his latest book, Weick talks about sense-making and the nature of interpretation (Weick, 2001). His method is presented as a three-stage process of scanning (data collection), interpretation (data given meaning) and learning (action taken). Only at the second stage is there a role for human engagement. Data collection is achieved by means of 'formal methods or personal knowledge' and pertains mainly to collection of 'environmental' data. Even then, it is described as the preserve of mainly top management. Weick's perspective serves to further strengthen the case for abbreviation and remote control. Even if individuals are given a role in the interpretative process, there is no need to involve them in the data. Data can be safely formalised, centralised, standardized and electronically mediated before any interpretation takes place! From a representational stance this is a displacement of staff's roles and responsibilities and an attempt to bring the outsiders into the organisational fold (Cooper, 1992).

Jackson concludes that the discourse of cyberspace (conflating itself with organizational space) has produced a view that organizations are synonymous with their information systems. This view of organisations as being one and the same as their information systems is a good example of abbreviation (Cooper, 1992). The complexity of temporal and spatial practices is reduced through promotion of technology as a mediator of electronic representations of the world. To return to Weick:

"Factors such as beliefs, politics, goals and perceptions may complicate the organisational learning cycle." (Weick, 2001, p. 245)

This statement reveals a particular management fear: lack of remote control. The preference is for reduced variability, predictability and adherence to an agreed set of beliefs and principles. From a bounded rationality perspective intentions and goals are assumed to be the creation of the inside of the individual's decision-making apparatus but, as Cooper says, from a representational viewpoint they are displacements in organizational space. Weick's comment highlights this tension.

The next section attempts to illustrate how Jackson's framework, together with the additional considerations of displacement, abbreviation and remote control, can be applied to an empirical example. Conclusions are drawn about the nature of work in such an organisation, as well as the usefulness of the analytical framework itself.

Research at CallCentre

This research material comes from an inter-disciplinary research project conducted over a three-year period from 1997-2000. As Foucault has suggested, interdisciplinary research can be very useful. It can help us to open up space to innovation and creativity (Milanzi, 2001). Certainly the project in its entirety incorporated several different paradigmatic approaches. [Further background can be seen at the project web site*.] The full research team included computer scientists, software engineers, information systems researchers and organisational analysts. Paradigm incommensurability notwithstanding, the different approaches produced interesting results. One of the activities undertaken was the development of an evaluation framework that could be applied to information systems. Within this framework several different approaches were applied side-by-side (something that in itself is a very contentious undertaking), from hard-edged re-engineering to a much more subjective and individualistic scenario-building exercise. Details of this work can be found elsewhere (Brooke and Ramage, 2001).

During the project the author adopted several methods of obtaining qualitative material. These included informal, semi-structured interviews, focus group meetings, discussions with management, and workshops with a wide range of staff. The material was recorded in note form because, for reasons of confidentiality, it could not be recorded by audio or visual means. In addition to the author's notes, written material from participants was analysed. For instance, workshop material included flip charts and notes produced by individual participants.

It could be argued that in so far as the author facilitated some of the workshops, the author became a participant in the research itself. The implications of this and its relationship to the adoption of a representational stance in a research context are discussed in the final sections of the study.

The material was analysed using Jackson's three analytical lenses of space-transcending technology, representation for work tasks to be mediated electronically, and the representation of organisational time and space (especially its depoliticization). Looking at the technology as space-transcending, the case was evaluated for evidence of technology's ability to overcome geographical barriers, internal geographical boundaries

as well as those external to the company. The nature of interactions across material space was evaluated, including social interactions. In looking at the role of technology for mediating work tasks, the role of signs and significations was important. Signs and significations were explored by identifying to what extent staff felt able to understand their own and others' spatial practices. Finally, the nature of the representation of organisational time and space was considered, particularly the extent to which it was possible for staff to create representational space for the purpose of constructing (and negotiating) new meanings and whether this was appreciated or depoliticised at the individual level as compared to the global (companywide and inter-company) level.

In analysing the empirical material consideration was given to the additional concepts outlined earlier, especially displacement, abbreviation and remote control. The following sections illustrate how these concepts, together with the notion of 'informate' can provide a deeper level of analysis than Jackson's original framework alone. The analysis also draws in the work of other writers (including Lefebvre and de Certeau) to underpin some of the main theoretical arguments.

ANALYSIS OF CALLCENTRE MATERIAL

To take Jackson's arguments in turn, we can first consider the role of technology in overcoming geographical barriers. There was certainly an increase in the number of people working from home within CallCentre, especially amongst management and administrative staff. Signs of resulting disenfranchisement were apparent. For example, there was difficulty in finding physical spaces within which to hold research meetings and workshops. Hiring rooms and organising refreshments became an obstacle to effective working because none of the senior members were based in common areas. A member of internal staff caused anxiety by checking on room availability. The focus group had moved into a bigger room to accommodate a better-than-expected attendance and this was seen as contravening the rules.

Despite the apparent power of technology to overcome barriers, there were distinct barriers of knowledge and understanding between the geographically dispersed group members. For example, the workshops conducted provided a welcome opportunity for face-to-face contact and exchange of information that group members said they had not previously been given. There were enthusiastic exchanges of cards and telephone numbers and expressions of intentions to 'keep in touch' with each other as they felt it helped them to get a better overview of the business and their part in it. This was quite a serious issue; it transpired that there were several different versions of working practice being implemented across the regions and that each was unaware of the other. Clearly this was having an impact on the way they interacted with each other and with customers, and yet without knowledge of the variety, they were in a poor position to address these issues. The technology per se was not only failing to address any of the geographical barriers at individual and regional levels of the business but also potentially contributing to them by giving a false impression of their interconnectedness.

Lefebvre (1991) points to the inherently contradictory nature of this tendency

towards disillusionment with material space, saying that at one and the same time material space has the capacity to be treated on a global scale (as displayed by technology spanning geographical boundaries) and is also fragmented (as displayed by administrative procedures, exemplified in the use of computerised document imaging). It is not so much that only one or other view of space is correct but that both (and all variations in between) are important for our understanding. This becomes even clearer when we consider further below the manner of representation of organizational space and time.

Concerning the role of technology in providing representation for work tasks to be mediated electronically, there was a lack of transparency between regional working practices. The interesting point is not that a lack of transparency should be seen as either intrinsically desirable or undesirable, but that the causes were seen to be the result of human intervention. The research informants argued over and over again that problems were caused by individuals “manipulating the data outside of the visible system”. CallCentre felt that their attempts to systematise the retrieval and manipulation of information was being undermined by the complexity of inter-relationships between systems and people, systems and systems, and people and people. This anxiety was very reminiscent of the desire for remote control. The assumption was that all activity should be digitised and that this would then become transparent, leading to a significant reduction in ‘errors’.

A dominant rationality is dependent for its domination upon the mastering or control of what management perceive as the structure (technology and processes) or language (codes and symbols) of engagement (Cooper, 1990). At CallCentre there was substantial evidence of the separation of individuals from control over the information sources and what appeared on their screens. Several members reported that separation of the customer from the professional staff had led to such significant downturns in customer satisfaction ratings that management decided to re-introduce direct contact between the different parties. There had also been a move towards a panopticon scenario for professional staff. Management introduced automated interfaces between professionals and technology for the ability to remotely monitor and assess individual performance and apply performance criteria. The reason given for automating the process was that individuals would otherwise “attempt to subvert the performance criteria”. However, the effects of the interface had been very damaging for staff and had become a serious industrial relations issue. Staff reported that the technological changes were having a “demoralising effect”. In response, management began to modify the technological interface in order to give the staff more of a sense of control and were attempting to rebuild the trust they had lost. Both customers and professionals had expressed a preference for “more human contact”.

The standardisation of programs and processes was seen as the way to remove error; as they put it: “we need to standardise the processes”. All data on screens were meant to be in a standard format. Information was seen as flowing from one technological station to the next. Problems with the lack of fluidity were articulated as follows. At certain points in the workflow, ‘robots’ (automated PCs) were used to support the business processes. Although the intended effect was to speed things up, the robots

were unable to cope with the wide range of tasks and the incomplete or ambiguous nature of received data. Individuals were brought in to support the robots and deal with cases of exception. The number of people supporting the robots grew to a level where CallCentre felt that its objective of automation was undermined. During one of the meetings with management staff, the solution was articulated as:

“improve the processes, simplify the tasks so that robots can handle them and remove the people”.

Instead of seeing the interruption of fluidity in terms of a problem of technological intensification, it was seen in terms of too many people supporting the robots.

Representational aspects of organizational space and time were also evident. It was clear from the outset that material space was an issue at CallCentre in terms of individuals' sense of location and displacement. There were also many issues at regional level, too. The business was regionally fragmented as well as processually fragmented. Centralisation of certain processes and activities was seen as desirable but was to be achieved virtually rather than physically. Whilst a range of activities (processes) would be located at each geographical centre to encourage “networking”, the synthesis of each task type on a national scale would be done electronically. Interactions between people were being reshaped and constrained by the technology.

On several occasions during interviews and workshops, both staff and management indicated that there was a lack of agreement on what constituted appropriate working practice within the organisation. The technological changes had brought together two previously remote groups of workers, each with different terms and conditions of employment. The industrial relations issues were widely cited and negotiations with Trade Unions had been taking place over a protracted period of time. Thus, conducting certain activities on a virtual basis had rendered more transparent *to the workers* differences in employment conditions. The fact that this was seen to disadvantage some people had forced management to invite staff into a representational space where discussion and negotiation could take place over what should constitute ‘the norm’.

It is interesting to note how such instances of increased transparency can have unlooked-for effects and erode management's base for remote control rather than immediately strengthen it.

Key to an understanding of the role of signs and significations at CallCentre is their ‘view of information’ and their approach to the role of robots. The author was careful to establish explicitly from organisational members what was their ‘*view of information*’ (Brooke, 2000). The answers were intrinsically contradictory. Whilst members recognised that ‘information’ (their word) received on a terminal screen would not be interpreted in the same way by everybody, they still insisted that this was a result of ‘human error’ and that the solution was to automate people out of the process as far as possible. The assumption was that the technology was a neutral vehicle for transference of facts and that it could speed processes across spatial and functional boundaries.

Machines were also seen as good at transmitting such facts unchanged from place to place and, therefore, with a high degree of accuracy.

There were a number of different discourses at CallCentre but the dominant discourse promoted technology as cost-cutting and improving efficiency. Efficiency here relates to 'doing things right' and assuming that this will lead to effectiveness ('doing the right thing'). The role of individuals was to look at information on the screen and perform certain prescribed functions with it before passing it on to the next technological stage in the chain, which ran in a loop from the customer through various functional units and back to the customer again. Outputs had to be predictable and pre-determined. Ideally, there was to be no role for individual interpretation. During one of the interviews the problem was described in terms of being:

"... subject to each person's individual interpretation of the codes."

Their solution was obvious – remove the people and you remove the errors.

From a representational viewpoint, it became clear that there was no commonly agreed understanding of codes. Several comments from members highlighted that despite the fact that individuals would 'beaver away' (work hard) at their screens, they were generating more problems than 'solutions':

"We are good at fixing faults but we introduce a lot of faults, too. 50% of the work is actually re-work."

The main cause of these errors was seen as a lack of agreement concerning how to interpret the information on screen. Coupled with this was little evidence for involvement of staff in an intellectual or spatial discourse that would enable them to re-negotiate the signs and significations involved in the processes. Individuals frequently commented about 'lack of accountability' and 'lack of ownership' of work. Such comments were interpreted by management as the result of wanting to shift problems into someone else's domain. To address these issues management adopted a coercive stance and planned to introduce financial penalties for staff:

"The only way is to threaten people's pockets."

This stance assumed that individuals right across the business lacked sufficient commitment and/or pride in their work. It is interesting to compare the attitude towards the robots with that towards the staff. Inadequacy of robots was assumed to be the result of over-complicated processes and incorrect data. Inadequacy of the people was assumed to be due to lax practices, selfish motivations or subversive behaviour (cf Ackroyd and Thompson, 1999, p. 8 ff).

One particular point in the chain of work processes had been blamed for interrupting the fluidity. However, it was acknowledged by many of the staff that this is because problems collect 'upstream' in the processes and only manifest themselves

further downstream at the point where synthesis between disparate strands of data is meant to occur. Representationally this can be explained as one symptom of the lack of representational space. Upstream there is no engagement with the data. This 'meaninglessness' compounds along the chain until it reaches the first point where engagement is allowed to occur. At the supposed point of synthesis, therefore, there are significant struggles to make sense of the data. Unsurprisingly, many 'failures' are surfaced and bounced back along the process or else partially interpreted and sent further down the chain, only to 'fail' at a later stage.

If we use the information systems metaphor to question the basis of these interpretations then we can begin to identify other ways of describing the work. Management seemed to find it difficult to think outside the box, restricting themselves to automation and the substitution of human effort. This inability to think beyond a certain mindset is explored further below.

Reflections on the CallCentre experience

Many of the points articulated by the organizational members appear to have a strong resonance with the representational concepts described. In particular, the analysis highlighted a struggle between the feelings of individuals (including management) and the dominant rationale presented by the organisation.

CallCentre have turned the concept of informing on its head: they were not applying technology so as to augment human effort instead they were augmenting technology with human labour (people supporting robots). This was problematised by management in terms of a need to reduce headcount and associated overheads.

From a representational viewpoint, the conflation of cyberspace with organizational space helps to explain why CallCentre viewed their approach as appropriate. One of many possible ironies is that attempts to reduce costs through automation had led to huge costs being incurred at all levels of the set up. For example, costs incurred through inadequate robots, inadequate processes, the cost of failures (re-work), customer dissatisfaction, and the cost of faultfinding within the system itself (that which is outside the 'visible' system). Simplification was assumed to mean automation.

Management were striving for rational transparency for, as de Certeau argues, without this it is impossible to administer at all. It is not just the complexity of temporal and spatial practices that is being downplayed at CallCentre but also the very necessity for spatial practices to exist at all. In privileging progress (i.e. time, speed, efficiency etc) space becomes the blind spot of a scientific and political technology (de Certeau, 1984, p. 95).

From a representational viewpoint *information is not a surprise or a commodity* since it consists of an 'inside' of familiar and manageable forms constructed from an 'outside' of less familiar and manageable forms (Cooper, 1992, p. 270). This is a very pertinent point for CallCentre. On the one hand it would seem to support their desire for

standardisation and removal of the surprise factor ('errors'). On the other hand it highlights the critical need for them to understand how they construct their own representational schemes. They cannot have it both ways.

Research at CallCentre suggests that there are enormous social complexities involved. The assumption is that implementing technological changes in the temporal and spatial organisation of activities and processes will solve/remove the majority of problems. An alternative reading of the situation (through the lens of the information systems metaphor) would suggest they have served to compound them. Attention needs to be given to the social construction of their existing practices and processes. This could then lead into an evaluation of the appropriateness of technological and other types of solution. Jackson, for example, questions the efficacy of dispersing information workers since virtual working relies heavily on shared knowledge and meanings, and virtuality as such does not encourage or support the development and negotiation of representational schemes (Jackson, 1997 p. 200).

The ability to operate via technology-mediated representations of the world is a taken-for-granted principle of CallCentre's organizational design and activity. The fact that problems outlined earlier have not drawn attention to the uncritical nature of their approach highlights its insidious nature in organisational life. Even though both staff and customers have stated preferences for mediation by human means rather than electronic, the basic premise of technology as a solution in itself has not been revisited – yet.

The value of adopting a representational viewpoint

Considering the aims of Jackson's framework outlined in the introduction, it is useful to recall here de Certeau's interpretation of panopticon as a form of 'all-seeing power'. As he puts it:

"[Procedures] far from being regulated or eliminated by panoptic administration, have reinforced themselves in a proliferating illegitimacy, developed and insinuated themselves into the networks of surveillance, and combined in accord with unreadable but stable tactics to the point of constituting everyday regulations and surreptitious creativities that are merely concealed by the frantic mechanisms and discourses of the observational organization." (de Certeau, 1984, p. 96)

He draws attention to the relationship between procedures and the space they redistribute in order to make an 'operator' out of it. Lefebvre, too, discusses the tendency to fragment space into a multiplicity of procedures or processes (Lefebvre, 1991, p. 355). Such procedures and processes, themselves fragmentary in nature, are developed further through the use of computers, and reflect the division of labour and the division of needs/functions, producing an image of space as something that is simply homogenous/fractured. Rather, he argues, space is all of this at one and the same time. The ways in which space is carved up are similar to the ways in which representational images tend to carve up the human body. From this perspective representational issues are paramount to any analysis.

What de Certeau and Lefebvre describe is, indeed, insidious but de Certeau's point in particular is an optimistic one, in that he believes panopticon can have a transformative effect at the individual level. To this extent his arguments (like Jackson's) go beyond Foucault, Zuboff and Cooper. Whereas they tend to view the panopticon of technology primarily as a means for controlling work/workers, de Certeau argues that it can also be viewed as a way of 'seeing' the impact that a 'system' has on ourselves and on others. He argues in favour of organising technology so that it provides everybody with the all-seeing power.

In the context of more recent forms of organisation de Certeau's argument is just as relevant. Even in so-called de-centralised organisations, the central-ness from a representational viewpoint resides in the standardisation of the software and interfaces, etc. To this extent, representational power does reside at a distance from individual workers even where no centre is thought to exist in the organisational structure. This is a very useful notion when dealing with 'new' forms of organisation in that it helps us not to lose sight of some fundamental issues of organizational analysis. It highlights the importance of creating 'intellectual' space in which to explore, evaluate and develop the representational aspects of organisational life. The creation of such space within organisations may assist us in recognizing how, in de Certeau's words, fixations constitute procedures for forgetting, and the trace left behind is substituted for the practice, so that it causes a way of being in the world to be forgotten.

In so far as the representational viewpoint seeks to promulgate a conceptual map for reading organisational interpretations, it can be subjected to its own critique. For some this is perfectly in order, for others it will present a philosophical dilemma. If we are part of the lived experience then we cannot at the same time transcend it. If we cannot transcend it, then we are not in a position to solve the case. For those who find themselves in a philosophical dilemma here, there will be the small problem of Gödel's Theorem to consider (see Hofstadter, 1979, for a useful and entertaining account of these issues). Gödel's Theorem proposes that we cannot jump out of ourselves any more than Escher's dragon can jump out of its two-dimensional world and step into ours. As Hofstadter says:

"In any case, this contradiction is so great that most of our lives we just sweep the whole mess under the rug, because trying to deal with it just leads nowhere." (Hofstadter, 1979, p. 698)

This partly accounts for a feeling of uneasiness during the research with CallCentre. Attempts to get them to see things differently – even for a moment – were problematic and always they came back to the same assumptions. Scoping the issues was constrained right from the start with an insistence on reduced headcount, reduced overheads, reduced human interventions, and an increased role for automation. And yet several times members used the phrase "I wouldn't have started from here...".

In Cooper's words, representation is a more fundamental concept [than

information] because information must first be represented somehow. He argues that:

“Representation becomes the conversion of force or power into information. Conventional organizational analysis is still generated in a Euclidean space that prevents it from understanding the outside of its object. Representation offers a way out of this conceptual impediment.” (Cooper, 1992, p. 271)

The problem of refusing to see ‘outside’ one’s preferred mindset is discussed by Letiche. He argues that the ideology of managerial control needs to open itself up to other ways of *seeing* (Letiche, 1996). The analogy of Gödel’s Theorem highlights CallCentre’s ‘stuckness’ and their stubborn refusal to move beyond a particular dominant rationality. Adopting a representational framework could offer a way out.

REFLECTIONS ON THE MODIFIED FRAMEWORK

Jackson has effectively attempted to overcome the ‘exclusivity’ of dissective-cohesive thinking and present a framework that enables what Lefebvre has demanded about the production of space. The relationship between organisation, technology and actors is not viewed only in terms of structurally opposed relationships (fractured/divided roles of operators and operations such as manager/staff, actor/software, etc). As Cooper has argued, human action occurs not in spaces but between them and this is what a representational viewpoint offers in its analysis (Cooper, 1992).

Jackson’s framework draws special attention to the ‘space between’. It argues for the creation of a representational space within which stakeholders can negotiate meaning. This will undoubtedly have consequences for power relations and present a significant challenge to managers. If we broaden Jackson’s framework to include the additional concepts outlined earlier then we can deepen our analysis, especially with respect to the issue of shifting power relations.

Through the processes of displacement, abbreviation and remote control, technology appropriates and borrows from the skills and knowledge of the very people and sources that it seeks to dominate (Cooper, 1992). This leads to the appropriation of space and time. The technology becomes the centre and appropriates from the periphery, and its ability to collate in real-time appropriates time too.

It has been argued that analytical deconstruction can reveal a somewhat powerless actor:

“Management practice is ephemeral, fragmented and discontinuous; management fails to gain rational control over action or to get activity focused on its purposes.” (Letiche, 1996, p. 208)

Letiche further argues that acknowledging the inability to plan rationally and effect change can sometimes be the only opportunity for management to throw off what he calls ‘the modernist ideological yoke’. So in order to move out of its ‘stuckness’, CallCentre

management will first have to become powerless. Such a change may involve not only recognising the limited view of its dominant rationality to date, but also accepting that its espoused aspirations may not be achieved or achievable anyway (Letiche, 1996). This reflects the point Foucault made about recognizing the possibility that things that appear to be uniform and unshakeable from a totalising perspective may be equally frail and vulnerable when seen from a different perspective (Alvesson and Willmott, 1996, p. 167).

The over-riding argument presented in this paper is for the value of creating representational space. If becoming powerless is a necessary precursor to creating representational space, then this constitutes a significant shift in the ideology of managerial control. De Certeau puts it very powerfully when he discusses how rational organization operates in producing its own space:

“... rational organization must thus repress all the physical, mental and political pollutions that would compromise it.” (de Certeau, 1984, p. 94).

It is a necessary shift from de Certeau's repression to Letiche's powerlessness, however. Otherwise, creating representational space would constitute no more than just another attempt by management to determine what happens during the meaning negotiation process, viz remote control.

CONCLUDING REMARKS

This paper is not an attempt at closure for, as others have indicated, any act of representation can never be a final closure since other voices will always continue the conversation (Parker, 1993). To this extent, the paper has attempted to present the issues that seemed most important in a particular situation at the particular time of the research.

There is an argument to suggest, however, that researchers would find it useful to consider the role which representational principles have in the conduct and communication of their own research experiences. This paper represents numerous acts of interpretation. Not by the author alone but also by all the other actors involved along the way; for example, the authors referenced in the work, the members of CallCentre, the reviewers and finally, through its reading, the readers. These very acts of interpretation are attempts at abbreviation and remote control.

As academics, we usually attempt to reduce the material we collect and/or create (depending on your worldview) to a more manageable level. We adopt a wide range of methodological strategies in order to do this (e.g. story-telling, classification, modeling, or metaphorical interpretation). We exercise intellectual forms of remote control in order to subdue the intractable nature and inherent complexity of organizational life so that we can present it as coherent and articulate. Often the quality of our work is judged by our success at convincing others that we have achieved this.

Many researchers would recognise that all representations of their research are incomplete in so far as they can never recapture every aspect of the lived experience.

Indeed, for many (both positivists and interpretivists alike, to take just two contrasting positions) that is not the objective of their work anyway. Yet few pay explicit attention to the representational processes which this recognition seems to suggest exist. The positivist might view abbreviation and remote control as absolute necessities and, in a similar way to the traditional management approach, might see the perfection of such processes as ends in themselves. The interpretivist, on the other hand, might view abbreviation and remote control with great caution, if not suspicion. They may be seen as inevitable features of communication whose role in the analysis needs careful and explicit scrutiny, or they may be viewed as victims of their own reductionist endeavours.

From an organisational viewpoint, any attempt at creating representational space could itself be seen as a form of abbreviation and remote control, as the stakeholders struggle to make sense of their organizational contexts and to reach some sort of (albeit temporary) negotiated meanings. The difference, though, would be that in the latter case many stakeholders and not just management are negotiating the meanings, and this is a crucial difference.

To echo de Certeau and Lefebvre, a key issue in this paper has been the marginality of the consumer by the producer (where the CallCentre consumer = staff, and the producer = management). Indeed, modern systems increasingly leave no space (place) for consumers to indicate what they want to make or do with products (Linstead, 1993). Jackson's framework makes a case for the production of such a space and by reference to the CallCentre research, this paper has attempted to illustrate the relevance of such a call to contemporary management practice.

ACKNOWLEDGEMENTS

I would like to thank the two anonymous reviewers and Montanus Milanzi for their suggestions on modifications for the paper. I would also like to thank my colleague Alvaro Carrizosa for his invaluable critique during the final stages of writing.

The other academic members of the CallCentre research team were: Dr. Magnus Ramage, Lecturer in Information Systems, Open University, and Professor Keith Bennett, Research Centre for Software Evolution at the University of Durham, UK.

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Subjects:

People: Brooke, Carole

Author(s): Carole, Brooke

Publication title: Tamara : Journal of Critical Postmodern Organization Science. Las Cruces: 2001. Vol. 1, Iss. 3; pg. 39-52, 14 pgs

Source Type: Periodical

ISSN/ISBN: 15325555

Text Word Count 7,545