COMMENT

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Commenting on the work of others is a curious and somewhat arrogant activity. Very often the reader is left knowing rather more about the general opinions and concerns of the commentator and rather a little about the papers being discussed, their strengths and weaknesses. And so it will be with this comment! Rather than discuss the detailed content of these three valuable papers, I build upon one characteristic they all share: a reflexivity about the role of research and the researcher. I use the three papers by Nissen, Pettigrew and Sandberg to argue that if research in information systems is to be socially useful and informing, then researchers in the subject will need to be more sensitive to the human and social context in which they work, including their own relationship to powerful interests in large corporations and the state. Such an argument has, of course, been raised in many critiques of the use of social science (Gramsci 1971; Baritz 1960; Habermas 1971; Foucault 1980) and the rationalization of Western Society (Weber 1978). Whilst I have raised this concern in an accounting context (Cooper 1983, 1984; Cooper and Sherer 1984), I welcome this opportunity to extend the argument to research in information systems more generally.

There is a certain coherence and complementary in the three papers. Nissen sets the scene and Pettigrew and Sandberg develop specific issues, particularly relating to the conduct of IS research. The background to all three papers is a belief that much of existing IS research is managerialist, technocratic and scientistic and that reflexive researchers have a responsibility to break out of this narrow framework and to conduct a strategic debate about the purpose and practices of the IS "craft" itself, and research on the craft. I explore the issue in the first section of this commentary. If one were to be critical of all three contributions, it would be in terms of their failure to provide a theoretical explanation for the current state of IS research and practice. I would suggest that this theoretical lacunae, a failure to locate IS research in a concrete social context, leads to an over-reliance on exhortation and too little emphasis on the constraints to a reorientation of the subject. In the second section, I discuss the proposals for conducting

research in IS, particularly those of Pettigrew. And finally, I use Sandberg's work as a specific example of the strengths and weaknesses of the sort of research that is being called for by all three authors.

Setting the Scene: Dilemmas of IS Research

Nissen's paper raises two basic questions about IS research. These are, firstly, in whose interests is knowledge produced and, secondly, how might we go about creating knowledge of IS? Both Pettigrew and Sandberg address these questions although both concentrate on the latter issue (which will be discussed in the other sections of this comment). Below the surface in both papers, however, is a concern with the clients and beneficiaries of research; this is clearer in Sandberg's concern with unions and democratization of work, but is also evident in Pettigrew's work for the managers in ICI.

Nissen himself most systematically discusses the effectiveness of IS and in whose interest knowledge is produced. He is concerned about how we might use and further develop IT as a part of a progressive development of society. He eschews simple analogies to earlier industrial revolutions, an analogy which sees IT as a way for specialist "knowledge workers" to improve their efficiency. Like Weizenbaum (1984), Nissen is concerned about the pervasiveness of the impact of IT not only in terms of increasing rationalization and potential for detailed surveillance and control in organizations and society, but also in terms of its influence on human thinking, interactions and self image. For example, some of the most notable work in artificial intelligence ignores the "feeling" side of our human-ness and instead treats our cognitive abilities as an analogue to a rather inefficient computer (Newall and Simon 1971). IT may have a rather dramatic, if subtle, effect on our image of ourselves and thereby affect the way we interact with one another.

Studies on the production and implementation of information systems may be useful but Nissen argues that these studies should be supplemented by those that assess IS in the context of the distribution and mediation of knowledge in organizations and society. He would seem to share the concern of writers such as Hoos (1961), Braverman (1974) and Touraine (1971) about the separation of thinking from manual work. This separation results in an increasing concentration of knowledge in the hands of a few designers and managers and the de-skilling of jobs and alienation from work for the majority of workers. Although recent case studies indicate that the dual process of a concentration of knowledge for a minority and de-skilling for the majority is not inevitable (e.g., the cases in Wood 1982), IS does seem to be associated with increased routinization and formalization at work and "expert" systems and "user friendly" software facilitate the de-skilling of jobs. When the issues of the fragmentation, concentrated distribution and specialization of knowledge is allied with a concern about how we, as people, relate to IS, it is not surprising that Nissen suggests that a strategic debate on future research in information systems is overdue; what are the "right" things to be working on?

Whilst I share Nissen's concerns, I doubt the effectiveness of a strategic debate in shifting the direction of research, let alone practice. I suggest that it is necessary to locate IS in wider social, economic and political developments and to thereby recognize that not only are IS practices reflexive (and constitutive) of wider social developments but that IS research is itself a product (and a creator) of society. In particular, I am unconvinced

by the image of the IS researcher depicted in Nissen's paper; an independent (potentially critical) scientist controlled by a peer group of fellow scientists. I am not, at this point, concerned about the nature of the science or the methods of scientific inquiry suggested by Nissen, but rather wish to point out the unspecified social context of the research community. The researcher is seen as an autonomous agent who is free to choose the direction of IS research and thereby able to eventually influence future needs and demands for information systems. Placing both IS research and practice in a social context undermines the image of autonomous action by researchers or technocratic determinism for practices. Pressures on researchers come from both large corporations (as IT producers and IS users) and from the State (as defense contractor and a mediator between different groups in society). Much research funding is dependent on the assessment by corporations or state agencies of the 'relevance' of the research; the client not the researcher identifies the problem and its mode of solution. Relevance is typically defined in managerialist terms; for example, replacing potentially recalcitrant people by passive and predictable machines; minimizing costs and controlling the organization of work by fragmenting tasks and encouraging specialization and developing large scale computer architecture to facilitate increased surveillance and coordination in defense systems. Research in such a context is increasingly likely to be fragmented; the clients very often have a prejudice in favor of confidentiality and specific knowledge; it is unlikely to be thought desirable to give competitors (either other states or corporations) the secrets concerning modeling techniques, system design or information processing innovations. Knowledge itself becomes fragmented, specialized and unevenly communicated.

It is likewise useful to place IS practices in a social context. That is not to say that there is agreement amongst social theorists about the nature of society and which aspects of its functioning are most relevant to understanding the way IS seem to have developed. Braverman (1974), for example, locates his analysis of knowledge concentration and the associated deskilling very firmly in the realm of the economic, most particularly in its role in the control of work, the pursuit of profit and the accumulation of capital. Others (e.g., Poulantzas 1975; Foucault, 1980), whilst also laying stress on a class analysis, may emphasize political and ideological dimensions, particularly the role of IS in surveillance, repression and discipline. It is not possible in the confines of this comment to explore these ideas, but I am concerned to emphasize that the nature of IS practice and research is not at the absolute direction of IS researchers, but is subject to pervasive social influence. Because I do not believe that researchers are mere puppets, however, I see a place for the strategic debate that Nissen suggests; but because I see a constraining social context, I believe that such a debate is not only unlikely to occur but, even if it were, is unlikely to reorientate the subject.

Conducting IS Research

The second theme of Nissen's paper is a concern to develop the methodological basis for IS research. I am (almost) entirely in sympathy with his concern to produce grounded studies that not only take seriously the experiences and views of the subjects of IS practices but which also seek to actively involve the subjects in the research process itself.

In many respects, the research of Sandberg and his colleagues at the Swedish Centre for Working Life would seem to illustrate just the type of research that Nissen is suggesting. My reservation with such action research is that other researchers, who may be less critical and intellectually independent than Hans-Erik and Åke, may be inclined to unquestioningly accept the views and beliefs of the subjects; therein lies the route of producing ideology and reproducing the status quo.

Pettigrew's paper, which extols the benefits of the contextualist method of research, focuses more extensively on the conduct of research. In a sense, there is little that I would wish to disagree with in Pettigrew's paper. It too illustrates the research methods that Nissen is calling for. Not only is it a detailed, longtitudinal, grounded study of processes of organizational development, it also seems to have involved active interaction with managers. My sympathy with the contextualist method espoused by Pettigrew is hardly surprising since I, and a number of other colleagues, have been conducting research using a similar approach in the National Coal Board (Berry et al. 1985). Following the methodological suggestions of Glaser and Strauss (1967), Denzin (1970), and Giddens (1976, 1979), we studied management planning and control over a two year period, observing processes in the context of the history and the inner and outer context of the industry. Whilst our work is much less ambitious and extensive than Pettigrew's study of management development processes at ICI, it is not clear to me what contextualist methods entail that set it apart from other, historically and contextually orientated, grounded studies. Perhaps the book (Pettigrew, forthcoming) will clarify the difference; in the case study presented in the paper, I detected little of the outer (socio-economic) context, the theoretical framing or the switching between levels of analysis which Pettigrew regards, elsewhere in the paper, as important characteristics of the method.

In some respects, I was more disappointed by what Pettigrew chose not to include in the paper. The early part of the paper makes a well reasoned case for regarding the research act as an unstructured and creative process, involving "choices" and "accidents." Yet this view of research and a concern for reflection does not, for me at least, come through in Pettigrew's account of his own research activity. Instead we are provided with a set of guidelines for doing contextualist research; an approach which seems somewhat at variance with the "artful inquiry" view of research presented in the early part of this paper. My inquisitiveness about how Pettigrew conducted the research craft is not a matter of intellectual voyeurism; rather it is concerned to bring to the fore the very issues discussed in the previous section of this comment. What choices were made regarding methods, data and theory; what is the autonomy of the researcher in these processes and how far are the inner and outer contexts of the researcher himself and his history implicated in these choices? Embracing the human and craft-like characteristics of the research process is not just an end in itself; it forces researchers to become aware of their own social situation and the way they view themselves and interact with others. This concern could of course be leveled at most research (including my own), but my disappointment regarding Pettigrew's paper is that it seemed, in its first few pages, to offer a more human account of research.

Bringing it All Together? Praxis Research

Sandberg directly addresses the issues of in whose interests should IS researchers be working and how to conduct research. The comparatively unpolished nature of his paper

is a virtue for it clearly exposes a concern with the role of information in the democratization of work and with a dialogue with the subjects of research as an integral part of the research process. Sandberg is critical of action research and most practical attempts at socio-technical design because they accept the status quo, with existing patterns of control, given technologies and constraints on action. But by directly addressing the strategies that trade unions may adopt and the role of education and dialogue in strategic action, Sandberg clearly hopes to avoid impractical idealism. Mirroring a similar theme of Nissen, Sandberg is concerned to unite scientific practice with practical actions and to ensure a dynamic interplay between the two. There is an image of the researcher with a degree of professional autonomy, an image which I have previously taken issue with in relation to Nissen's paper. Yet because of Sandberg's interest in helping the user, in developing theory and, most significantly, in locating research within the wider context of societal change, I suspect that he will be able to forge alliances with social groups to enhance his autonomy. But there are obvious risks of failure!

Yet despite the virtues of the paper, namely a clarity of purpose, a comparatively liberated view of the potential for change and a demonstration of the value of dialogue in the research process, there are some difficulties that remain. I believe these stem from an incompletely articulated view of society which, on the one hand, leaves me doubtful about the generalizability of the Swedish experience, yet on the other, leaves me unsure about the success of the experiment itself. I will explain my concerns by indicating why this work would seem either infeasible or unsuccessful in a British context.

Firstly, whilst there are groups of researchers who have actively worked with workers in challenging corporate information disclosures, the success of such endeavors seems unlikely in Britain. (I am not at all clear about the situation in other countries. Casual theorizing would suggest that the relative freedom of the law from corporations and the state, the power of trade unions and the information open-ness of the society would all impact on the success of the process.) It may be that British capitalism is peculiarly able to withstand democratic changes. Yet I suspect that the Swedish Experiment is the minority position. It would have been helpful if Sandberg had elaborated, however briefly, his view of Swedish society in terms of the reasons why democratization at work may be a successful union strategy. For example, Bornstein's (1984) analysis of union activities in Europe places considerable emphasis on the role of the Swedish state in maintaining co-operative and corporatist arrangements in industrial relations and economic policy.

A second reason for wanting to know more about the Swedish socio-economic context—to identify the peculiarities of Swedish or British society—relates to what I would see as a problematic joining of the interests of working people and the interests of labor unions. For Sandberg, praxis research in the interests of workers seems to be based on an assumed need to work with official unions. It is difficult to assess the validity of this assumption without greater knowledge of the Swedish context and history. Certainly British discussions concerning democratic control of IS are more likely to be expressed in the context of shop stewards' combines (Wainwright and Elliott 1982), plant level or community activities (Levie 1984), or macro economic and social policy (CSE 1979).

The third reason for my doubt about the general validity of the praxis research discussed by Sandberg relates not to its feasibility in other societies, but rather to its general value. Even leaving aside the problem of identifying real interests, a problem of

doing research in the interests of any specific group in society is that there is little guarantee that overall social welfare will be improved. Gains by one group in terms of working conditions, improved pay, greater job security, etc., may be at the expense of other groups—the unemployed, customers, shareholders, other groups of workers in Sweden or overseas. Research at the local level may be quite successful, but for the whole society to be better off there would seem to be a need for a more all-embracing view of desirable distributions of power, wealth and, as Nissen argued in his paper, of knowledge in society.

Thus to conclude, it is surprising that there was such a large degree of coherence and complementary between the three papers. And there is much that I, and many others, would agree with in their collective call for reflexive, change oriented, process sensitive, research in IS. Yet the call is likely, I fear, to fall on deaf ears; those doing "technical" research are unlikely to be swayed by the argument. This is largely because the researcher in society is not autonomous and the research which will be funded is likely to remain that orientated to technicist, managerialist concerns. What is needed is research that explores the social and human context and consequences of IS. What is unfortunate is that, in many Western societies today, such research is as unlikely to be funded (or even to be seen as legitimate science) from governmental sources as from corporate sources.

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