12 RHETORIC OF ENROLLMENT AND ACTS OF RESISTANCE: INFORMATION TECHNOLOGY AS TEXT

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Abstract

The focus of this paper is resistance; it deals with the problem of taking for granted the success of the mobilization of power involved in representational practices. The paper describes the metaphor of the technology as text as proposed by social shaping of technology (SST) approaches and suggests how this metaphor can be applied to information systems. This is done by focusing on the discrepancies between rhetoric of enrollment to the use of technologies and the experience of actual usage, implying such discrepancies lead to, or are a result of, acts of resistance. Adopting a critical approach and employing some analytical tools developed by SST, it is argued that texts can be unpicked *by active users. This is illustrated by a case study of a hospital information systems. The usefulness of the approach and tools are then assessed in discussion prior to a brief assessment of the paper in conclusion.*

Keywords: Texts, discourse, critical, social shaping, standardization, resistance, power

1   INTRODUCTION

For the last two decades, the political and conflictual nature of systems development within organizations has been commented upon (for example,

Franz and Robey 1984; Lyytinen 1987; Marcus 1983; Newman and Noble 1990). The focus of this paper is on acts of resistance by users against attempts to enroll them into usage of information systems (IS) in organizations. Therefore, we will need tools and concepts for examining both the technology as well as the context in which it is deployed. In relation to the technology, researchers from the social shaping of technology (SST)[1] approach have suggested that we employ the metaphor of the technology as text (Woolgar 1991), indicating that we should view IS as cultural phenomena; and that techno-logical developments can be viewed as sites of political conflict (Latour 1987). The latter point relates in part to the context of the technological development. The critical management approach (Alvesson and Deetz 2000; Burgoyne and Reynolds 1997) can assist us in studying the organizational context since it is sensitized to both power relations and the mobilization of that power through legitimate discourses. Discourses are especially important for us here since IS deal primarily with representations (Bloomfield 1991).

However, in describing the mobilization of power through legitimate discourses, we should not ignore the illegitimate, marginalized, and possibly less powerful voices. Kvasny and Truex (2000, 2001) have been keen in their exam-ination of the cultural reproduction of social order and the collusion of the dominated within that order. However, the force of any inscription is always contingent: it may not be read as the author intended. We should not concede too much ground to those in the driver's seat of technology deployment. Resistance to these inscriptions has been a topic in IS research for some time. For example, Marcus's (1983) seminal paper two decades ago pointed to assumptions about resistance as a function of the political reality of organizations. Hirschheim and Newman (1988) highlighted the marginalization of recalcitrant users, while Marakas and Hornik (1996) examined the dissonance between stated support for a system and actual resistance to that system. In addition, the underlying ten-sions between systems developers and potential users have been deconstructed (Beath and Orlikowski 1994; Markus and Bjørn-Andersen 1987) and highlighted through studies of differences in perspectives (Lyytinen 1987; Robey et al. 1993). Recent IFIP Working Group 8.2 conferences have had a variety of papers focusing on resistance (for examples, see Allen and Kern, 2001; Sorensen et al. 2001; Whitley and Hosein 2001; Wilson and Howcroft 2000).

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[1]Although ANT has found an audience in IS research (see Walsham 1997), other variants of SST have been largely ignored. However, Monteiro (2000) summarizes the "broad church" of SST as follows: systems thinking, as developed by Hughes (1983) looking at infrastructures; the social construction of technology (SCOT) (Bijker et al. 1987) emphasizing interpretative flexibility and relevant actors; and actor-network theory (ANT) (Akrich 1992; Callon 1991; Latour 1987) dealing with networks, inscription, translation, and irreversibility.

To study resistance in this paper we examine the impact of experience as a mediator of legitimate readings of texts. The phrase *rhetoric of enrollment* has thus been chosen, because it can encompass a deconstruction, on the one hand, of the texts and language surrounding an information system; and on the other, the script of legitimate usage that is implied in the physical makeup of the hardware and software. *Acts of resistance* is meant to emphasize the action individuals can take to resist such attempts to enroll the user.

The paper is organized as follows. In the first section after the introduction, a discussion of the use of the metaphor of the text and context in areas of academic research is provided. The application of the metaphor to technology by SST approaches proceeds and some implications for IS research are drawn. In the second half of the paper, a case study is intended to illustrate how, in practice, texts can be *unpicked* by users and how prescribed behavior can be resisted. The subsequent discussion evaluates the insights provided in the case study through the application of the notions described in the first half.

2 TEXTS AND CONTEXTS

2.1 Deconstructing Texts

Technology, since it has a symbolic aspect (Cockburn 1988), lends itself to being studied as a text. However, this immediately implies that we need to study the contexts in which it is read. A technique common to both cultural and critical approaches to technology and texts is deconstruction. This can be used to examine the text of IS in terms of representations of the technology, as well as the representation inscribed in the technology itself. From the political aspect, deconstruction can assist us in revealing the ways in which the IS brings with it the inscription of a moral order, privileges certain values and voices, as well as hiding some things while presenting others (Bowker et al. 1995). In seeking to remove some of this facade, we can give some voice to those things that were hidden or not immediately visible (Deetz 1992).

In employing deconstruction, the intention is to detect inconsistencies in arguments and explore the wider implications of those arguments, identify assumptions, evaluate statements in terms of evidence, detect false logic or reasoning, identify implicit values, and define terms adequately and generalize assumptions (Alvesson and Deetz 2000; Burgoyne and Reynolds 1997). Additionally, in this paper we will also examine the unpicking of the texts carried out by the users in practice.

2.2 Connecting Texts to Contexts

One major area of contention among academics employing the metaphor of the text concerns how we connect texts to their contexts. In the field of cultural studies, Raymond Williams grappled with the issue of how to (re-)connect texts with society by attempting to view how culture is structured as a whole (Turner 1990). Language forms an essential concept in examining texts since it can be studied as a way of understanding other cultural systems. Despite the failings of the structuralists (see Holborow 1999), they have provided us with the movement from language to the rest of the world. Thus, textual analysis is not just about analyzing the richness of the text itself, but text as a site for examining the wider cultural structures that produce them, and thus culture itself.

2.3 Resistance to Texts

Resistance need not always be viewed negatively (Hirschheim and Newman 1988). After all, the equation of technology with progress is questionable (Green 2002). If the text is a site for examining wider structures, then it is possible to veer toward a particular end—that of understanding "the ways in which power relations are regulated, distributed and deployed within industrial societies" (Turner 1990, p. 22). Indeed, it is arguable that ideologies, which play an essential role in the maintenance of power relations are only observable in material form through various texts. Therefore, the examination of **texts** becomes a chief political need. Michel Foucault engaged in this enquiry into the material, social, and historical conditions of ideological formations, and hence the histories of discourse.[2] For Foucault, discourse structures procedures and disciplines, directing the operation of power. He and many of his followers have not sought to focus on resistance to these regimes. Yet, in discourse theory's own terms, by writing about discourses only in terms of the structuring of procedures and discipline, are we not in danger of disempowering resistance? That is, not allowing resistance onto the agenda as a legitimate focus of study.

As an alternative we can insist on the free agency of the individual while examining the ways in which individual experience is culturally and politically constrained. This would also infer that we reject technological determinism—that is, ascribing to technology a set of intentions and effects independent of

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[2]The development of the term *discourse* is significant: "it refers to socially produced groups of ideas or ways of thinking that can be tracked in individual texts or groups of texts, but also demand to be located within wider historical and social structures or relations" (Turner 1990, p. 30).

history (Williams 1974). In so doing, *domination* is to be seen a process rather than a permanently achievable state. By viewing power and domination in this way, we introduce the notion of conflict, difference, and contradictions as components within a theory of determination. So domination is never seen as total: we can envisage studying resistance to ideological domination. Resistance allows for power to flow bottom-up and severely qualifies assumptions about the effectiveness of power imposed from the top-down.

The above would suggest that in studying technology as texts we may be more interested in the ways in which discourses *fail* to determine, *fail* to interpellate the subject, *fail* to prefer readings. In any case, we should be looking for moments of resistance, opposition, and subversion. One reading of the history of IS failures (Lyytinen and Hirschheim 1987) suggests that the imposition of a system of control almost inevitably invites its subversion (Turner 1990).

3 TECHNOLOGY AS TEXT IN INFORMATION SYSTEMS

How does the notion of the text as described above map onto technology studies—and by implication onto IS research? A number of theorists in SST have suggested that technology be viewed as text (for example, Cooper and Woolgar 1993, 1994; Grint and Woolgar 1997; Hill 1988; Woolgar 1991)[3] and SST researchers have provided us with some useful tools that are particularly amenable to a critical analysis of technology. The selection I describe below includes actant, interpretative flexibility, the script, inscription, standardization, and visibility.

3.1 Actant and Interpretative Flexibility

In general, researchers in SST have focused on the way in which the user is assumed and constructed in the design of given technologies (Woolgar 1991), as well as the ways in which users resist the role ascribed to them (Akrich 1992). By using the term *actant*, we can discuss in a nondeterministic manner the *impacts* of socio-technical networks. Actant is an especially useful notion since it suggests an active role not only for the technology but also for the user. This is important when highlighting resistance and contradiction. As Lohan (2000)

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[3]For a succinct summation of the problems with subsuming all interpretative activities to reading, see Bloomfield and Vurdubakis (1997, pp. 102-105).

points out, we are dealing with issues of structure and agency here, and interpretative flexibility allows a look at a subversion of scripts and resistance, while the script suggest the possibility of the obduracy of the technology. This allows for the reinscription by the user, or even rejection of both enforced technologies and socialized roles.

However, within the metaphor of the script and the user as human actant, Akrich (p. 206) points to the constraints made upon the actions of the actants and poses for analysis the "extent to which the composition of a technical object constrains actants in the way they relate both to the object and to one another." Attention is drawn to the difference between the *actual users* (those who confront the technology) and the *presumed users* (those imagined by the designer). Hence, a singularly attractive aspect of Akrich's work is that the user is not a victim of circumstances. Objects have a plasticity or obduracy and users are not passively manipulated; resistance is always possible.

3.2 The Script

An effective technique developed within the social construction approach for analyzing the construction of the user—and by analogy, the constraints placed on the free actions of the user—is that of the script (Akrich 1992). In designing technologies, the architects are involved in a process of predicting the future world in which the user will relate to and cohabit with the artefact. The notion of scripting is both a useful and accurate metaphor for the way in which a fixed configuration of the user and their behavior are built into the design of machines (Woolgar 1991). According to Akrich then, while designers are involved in *scripting* the world, the resultant innovations *inscribe* their prediction into the technical content of the object. However, despite the efforts of designers to exclude "non-docile" users, the script may not be played out, and the seal may be broken.

3.3 Inscription, Standardization, and Visibility

Berg (1997) describes the script as operating as a rationalizing tool. In research into health care information systems, Bowker et al. (1995) concluded that a view of what nursing is or should be is *inscribed* into the technical content of the systems they studied. Similarly, Berg and Timmermans (1997) discuss the will to rationalise and invoke the scientific in health care as elsewhere in Western workplaces. Hence they view the will to make the medical record standard as influenced by broader trends.

Evidently then, scripting and inscription are related to the notion of standardization and making work visible. Hence we take the metaphor of scripting to another level by viewing the technology as *action at a distance*. Frequently, technology is used as a change agent to bring about behavior required by the implemented. Thus a connection can be made between scripting and the formalizing of standards. For example, Berg (p. 5) goes on to indicate one feature of the notion of the script in relation to automated medical records and asks, "what ideal practice does the tool pre-suppose, what notions of 'optimal medical work' do its authors advance in their writings?"

4 INFORMATION SYSTEMS' SPECIFICITY

If we are to open the black box of technology, we need to recognize that in the case of IS, their complexity is such that the conflicts, opposition, and incompatibility of different interests are obscured. Yet, "people in [organizations] must all profess to hold the same goals, in order to maximize safety and serve the official objectives of the organization" (Dutton et al. 1995, p. 9).

So, there may well be a good theoretical case for treating IT developments differently from other developments (Quintas 1996). It appears that the informational aspect of the technology is significant yet has largely been under-theorized; the communicative role of information systems is pertinent (Coombs et al. 1991); and the control aspects associated with IT in place have implications for issues of power and inequality in organizations (Knights and Murray 1994, 1997). As stated earlier, in the case of IT, since it deals with representations, it brings with it the inscription of a moral order, privileges certain values and voices, as well as hiding some things while presenting others (Bowker et al. 1995). In this respect there have been some interesting studies of health care IS that adopt an actor network theory approach (Berg 1997; Berg and Timmermans 1997; Bloomfield 1991, 1995; Bloomfield and Best 1992; Bloomfield et al. 1992, 1994;. Bowker et al. 1995; Doolin 1999; Hanseth and Monteiro 1997; Hanseth et al. 1996).

It is likely that organizational and economic interests will be reflected in the particular configuration of an IS and so, in return, IS are likely to support and enhance the interests of a minority who already are in more powerful situations (Bloomfield 1995; Hirschheim and Klein 1989; Markus and Bjørn-Andersen 1987). Thus information systems can be used to translate the desire for change held by management or (in the case of the public sector) governmental layers of actors. In this sense, the IS can be implemented with the intended effect that operatives behave in accordance with their agenda (script).

4.2 Enrollment of the User: Evaluation and Training

From an actor-network perspective, the users must be made interested in the technology and persuaded to play the roles proposed for them (Akrich 1992). A key evaluation technique in IS development concerns cost benefit analyses which are utilized quite extensively to persuade users of the advantages of a system (Willcocks and Lester 1999). Such measures play an important role in directing organizational members to a particular set of criteria by which the IS must be assessed and pinpointing things the IS has accomplished. Sauer (1993) explicitly recognizes the use of evaluations for galvanizing support for IS projects.

Hence, it is possible to view both training and evaluation activities as instances of enrollment techniques: the training of users is likely to entail not only instruction on how to use the technology, but also schooling as to what value it possesses. This is usually phrased in terms of *understanding/seeing the benefits/potential* of the system. Thus, from a pro-project standpoint, support will be seen as a result of a rational evaluation on the part of supporters as to the benefits they perceive possible by virtue of the systems development process (Sauer 1993, pp. 90-91). This corresponds to determinist faith in technological progress and a functionalist belief in technology as the one true way of solving a problem (Markus and Bjørn-Andersen 1987; Newman 1989). Conversely, resistance will be demonized (Oliver and Langford 1987), viewed in patho-logical terms (Robinson 1994) and framed as irrational behavior (Hirschheim and Newman 1988). This then points to the fact that legitimacy is likely to be circumscribed before and during implementation.

5 CASE STUDY

5.1 Research Methodology and Background

The focus of the case study is directed to the care planning function of Crescendo, a nurse management system and its users at the Royal Hospital in the United Kingdom. The investigation centered on examining the role of informa-tion systems in changing the way people carried out their work in the National Health Service (NHS). Multiple techniques of data collection were used but some 20 tape-recorded, hour-long interviews were the primary source. The semi-structured interviews took place during a 10-month period with a cross-section of those members of staff who were deemed to be directly affected by the introduction of the system (that is, they were potential users of the system). The transcripts from the tape recordings were organized according to issues raised in the interviews and were analyzed according to the themes that emerged from

the literature review. However, the emphasis on resistance was largely a result of the demise of the system during the data collection period. In addition to interviews, the study also entailed observations of a number of the interviewed nurse users entering details into the care plans. In keeping with this paper's focus on representational practices, a number of reports spanning a 4-year period and concerning issues ranging from initial operational requirements through to sign-off were consulted, along with the various texts associated with IS training and use.

The Crescendo system described here consists of a database of care libraries that can be used to produce a printed, standardized document, replacing the hand-written notes used by nurses in the recording of their plan of care delivery for patients. The installation of the IS formed part of a broader project: it was to meet the recommendations of the government's Audit Commission and constituted part of the Resource Management Project aimed at instituting standardized health care practice and methodological financial management (Keen 1994).

5.2 Case Study Findings

The story of the Crescendo system at the Royal Hospital is told chronologically and in a way that will highlight the dissonance between discourse about the IS and the experience of using that system by the nurses.

5.2.1   Rhetoric of Enrollment: Benefits Realization

Post-implementation and following the initial enrollment activity of training, a series of evaluation sessions were inaugurated by the project nurse, whose role it was to persuade the nurses to use the system. The process of encouraging a particular perspective of a technology through formal evaluations is known in National Health Service parlance as *benefits realization*. The *organizational benefits* of the Crescendo system were produced using the supplier's own benefits realization methodology. Within the supplier's methodology, it was believed that setting the wrong targets would result in failure. Hence, a number of generic benefits were classified and used as a means of achieving total overage of potential benefits.[4] The lists of benefits were translated to the local application as follows:

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[4]These included benefits that save cash (or generate income), increase capacity without additional cost, improve quality, provide a marketing advantage, and strengthen control within the hospital.

- Saves time
- Compliance with the Audit Commission
- Ensures care and resources are planned
- Ensures care is structured and standardized
- Reduced litigation risks
- Standards implicit in care planning
- Prompted evaluation
- Professional care planning
- Realistic outcome measurement
- Quality measurement
- Immediate access to other libraries
- Enhances discharge planning
- Provides a basis for workload
- Supports training and education
- Assists research
- Enhances inter-ward communication

In the following year's report, it is clear that the Nursing Information Team was fully in support of the Crescendo system and through these reports and benefits realizations show that problems encountered with the implementation were ascribed to the users' attitudes.

5.2.2   Reality of Experience

One of the reasons why there was hostility to the system from the outset was that it took nurses away from care. For many nurses, the Crescendo system, as part of the administrative tasks they had to complete, took them away from hands-on care. This was partly because the location of terminals (in the nursing station or a rest room) meant that patients had to be interviewed and assessed in their bed, and then the nurse would leave the bedside to enter the information into the computer. This was explicitly counterposed to spending time talking to the patient by many of the interviewees. They had to prioritize record keeping over direct care. The nurses were very forthcoming about the physical and emotional proximity of care, affirming the observation by Bowker et al (1995, p. 356) that, "Nurses think that laying hands on patients is nursing."

The nurses at the Royal Hospital also stated that using the system actually increased the administrative tasks. There were often queues for the one PC on the ward, resulting in plans frequently being written in retrospect. They were critical of the software and hardware since the terminals and network links were slow. The slow links meant that access to the care libraries developed on other wards was limited. The way the system was set up (despite assurances to the contrary) lead to duplicated inputs, wasted time trawling through long-winded

menus, and repeated logins due to the security set up and the sensitive nature of the patient information. The system was not sufficiently developed to provide a basis for workload assessment and planning. Further, the care plans themselves were criticized: they had too little detail; they had too much detail; they reduced thinking and thus de-skilled nurses; they took longer to produce.

The shortage of time faced by nurses meant that the Crescendo system did not reflect how hard the nurses worked: if they were not busy, they had time to type up the plan (and even then in retrospect, hardly an advance); if they were busy, they could not do a plan. It was even possible to get the *reverse* picture of what had been happening on the wards in terms of *intensity* of activity. As one nurse commented,

> *I think the more time you've got to spend, the more you can put in a care plan, which in effect can be the negative of what is true or happening.*

This was despite management's insistence that only the automated care plan would be taken as proof of work carried out.

In relation to the *style* of nursing practice and its relation to usage of the Crescendo system, the project nurse (who had completed her nurse training elsewhere) insisted that the nurses had not been practicing care planning as a specific nursing technique prior to the introduction of the system. When asked to give their opinion of care planning, they generally were positive about it, yet most qualified this by stating that it was good in theory but the amount of time required to do it well was not compatible with the workloads they had on their wards. This was true, said one staff nurse, of both written and automated plans:

> *The theory behind it is good but even then, whether you write them all or whether you print them all: the pressure of work is so much on [this ward]. I can't comment about other wards, but on [this ward] they don't get looked at.*

Similarly, some nurses thought that care planning was not being carried out properly because the information on the care plan may not even be correct and there was little time to analyze the data collected through the care plans.

5.2.3   Acts of Resistance: Rhetoric Meets Reality

The previous remarks suggest that promises made on behalf of Crescendo—that the unpopular administrative workload would be reduced freeing the nurses to deliver better quality patient care—were broken from the point of view of the nurses. They found themselves working a dual system. Duplication in record

keeping due to the continuing use of Kardex, the traditional form of card-based record keeping for nurses, alongside the care plans was evident. Information from the interviews suggests that nurses used up to four main documents to process the patient's stay in the hospital.[5] Among these, the Kardex was utilized for minute to minute activities carried out and for evaluation of patient care delivered. Indeed, all the wards still used Kardex.

As for completing the physical care plans, some nurses admitted writing them entirely by hand and occasionally omitting some patient and treatment details. Still more confessed they had not always produced one for every patient. In place of using the care libraries, details were often typed in by hand. Some wards appear to have used photocopied printed sheets of core care plans, where they added any details they felt necessary. Often the plans were written after care had been administered. As for discharging the patient, again, nurses tended to resort to using the older manual documentation.

Well into the implementation roll-out, according to the project nurse, the nurses were still not care planning properly, even when using the system. This was confirmed by a staff nurse:

> *I think strictly speaking we were never care planning properly*
> *to start with. Then suddenly we had to start doing it and that*
> *didn't help.*

The nurses continued to nurse in the way they had been trained previously. Further, nurses prioritized effecting care over recording it and this was contrasted to the management's concerns which centered on having a record for legal considerations.[6] One nurse explained, expressing pride in her preference for performing the care task rather than just writing about it,

> *You just don't get time to write down everything that you do.*
> *You just do it as an automatic thing....Because when you*
> *change a dressing, you don't go and put it on the computer.*
> *You just go and do the dressing.*

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[5]The assessment document was used first to gather all of the main details of the patient's state of health, as well as their vital statistics; this was then used as the basis for the care plan—the nurses responded to the diagnosis, detailing the care required; the Kardex was utilized for minute to minute activities carried out—as per the plan; and finally this was backed up by the continuation sheets—which are bound.

[6]They were also concerned that the care plans did not reflect the personalized nature of the care they were delivering to different patients. This stands in contradiction to the claims made on behalf of care planning by the management that it would produce more personalized care.

5.2.4 Rhetoric of Retreat

The efforts made by the project team using the evaluation process to overcome resistance were not as successful as been hoped. Despite the case made for the benefits of the system, the users persisted in their negative views. Although these were not legitimate views for a long time and were excused as arising from a lack of understanding, during year three of the rollout of the system, there was a significant shift in opinion. This retreat is observable through three significant reports.

5.2.4.1 Retreat Report 1

A report prepared by the project nurse three years after implementation, entitled *Evaluation and Future Implementation*, begins with a reiteration of the expected benefits of care planning. Now, however, the report includes a column for actual benefits perceived to exist on the wards, as opposed to those previously believed to be "out there" to be had. The great difference with this report as compared with any of the previous benefits realization reports is that the *problems* were actually listed and, at this point, outnumber the benefits. They were enumerated as follows:

- *The quality of the care plan is not audited*
- *Saving of time is variable depending on previous practice on the wards*
- *Care plans not updated and evaluated on the system*
- *Staff state:*
  - *Insufficient time to use the system*
  - *All wanting to update care plan at same time*
  - *Require more than one PC on a ward*
  - *Prefer to use preprinted care plan*
  - *Continue to write detailed Kardex*
  - *Requires further work on care libraries*
- *Some staff remain negative towards the system—feel it detracts from nursing care*
- *Use of the system often left one or two nurses on the ward*

Here at last then, the nurses' opinions were reported and thereby legitimized. There is also a good possibility that the looming decision of whether to carry on with the system (at significant cost to the Trust) promoted a less partisan evaluation report from the project team. Whereas previous benefits realization reports were intended to convince the user of the need to continue with the project, this one raised the question of whether it was worthwhile to continue and mobilized the nurses' views to do so.

5.2.4.2 Retreat Report 2

Later, another report makes clear that the impetus to make a decision about the continued implementation of Crescendo arose from the supplier's demand for an outstanding support fee. Increasingly, problems with the *system*, not just the users, were brought out. This same report presented for the first time an aggregated statistic for utilization emphasizing the high proportion of non-usage, over two-thirds of wards, in place of previous efforts to present usage figures as encouraging. As this report summarized,

- *Overall no benefits identified*
- *Inhibits the care planning process*
- *The quality of the care plans has not improved with the introduction of Crescendo and in some cases has deteriorated*
- *Creating a care plan is far more time consuming*
- *No time to update care plans on the computer*
- *Slow and laborious*
- *Produces neater, more legible care plans*

Finally, users' views of the system take center stage and point to the label of failure that will soon be attached to the system:

> *The overall opinion is that the Nurse Management Information System had failed to produce the expected benefits.*

The recommendations of this report were either to switch off the system or to shrink it to those areas where it had proven most popular and to maintain it in-house.

5.2.4.3 Retreat Report 3

In a final report the decided failure of the system is described as non-achievement, and it is made clear that the decision to "switch off" the Crescendo system did not rule out the replacement of the system by another. The report also made clear that the user perception of and response to the system were major factors in outcomes. A lesson learned by those implementing the system was that obtaining the type of commitment necessary from nurses to make the system work is no mean task despite enrollment activities. Further, the same problems cited in this report had been brought to the attention of the systems project team three years previously. The sign-off report tabled the costing of Crescendo to

date and suggested the maintenance and enhancements cost for the system would have been double the original investment. The earlier report framework for making people aware of the benefits was now used in a negative way to show Crescendo's shortcomings. Once a case was made that continuing would not be possible, and adoption of the contending system became the considered best option, then the weaknesses of Crescendo were documented and the case against this system was made by the implementers.

6 DISCUSSION

6.1 Technology as Text

In the case study, we explored the metaphor of the technology as text in two ways. Primarily, we examined the text of IS in terms of representations of the technology, presenting and deconstructing the reports and representational practices surrounding the implementation of the Crescendo system. In Table 1, we can see the dissonance between reports and between rhetoric and reality of experience, which is further explored below.

Implicitly we have described the ways in which the Crescendo system assumes and prescribes a moral order, observable in material form: an idealized way of nursing. It is thereby intended to change work practices at a distance and to privilege management-held values and voices. In terms of hiding some things while presenting others, the Crescendo system appears not to account for, and even to detract from, the reality of the emotional and physical aspects of care. In practice this fact led to the identification on the part of the users of a conflict of scripts between the culture of care actually practice by the nurses and the prescription of and alternative culture of care planning using the automated system.

In this way, then, we have located the text of the technology and its representations in the context of the nurses' world and the delivery of health care on a larger scale. It has also provided further evidence of managerial practices related to rationalization, and thus presents a window on a much broader culture. One of the arguments put forward to enroll nurses into using information systems entailed the technology being able to show, by objective means, the extent of the nurses' hard work and thus, so they believed, the level of under-staffing. This would imply that the care plans would be accurate reflections of work carried out on the wards. However, this is far from the case. The shortage of time faced by nurses meant that the Crescendo system did not make visible how hard the nurses worked.

Table 1. Rhetoric, Reality, Resistance and Retreat

Rhetoric of Enrollment	Reality of Experience	Act of Resistance	Rhetoric of Retreat: Later Reports State
Saves time	• Increases tasks • Slow PCs • Slow network links • Duplicated input • Repeated logins • Long-winded menus • Queue for terminals	• Plans written in retrospect • Nurses use manual Kardex.	• Saving time is variable • Staff feel system detracts from nursing care • Creating care plan is more time consuming • Slow and laborious system • Staff have insufficient time to update care plans on the system • Staff all want to update care plan at same time • Require more than one PC on ward
Compliance with Audit Commission	• Early reports argue this	—	• Produces neater more legible care plans • Overall no benefits identified
Ensures care and resources are planned	• Plans written in retrospect	• Plans written in retrospect • Nurses use manual Kardex.	• Staff prefer preprinted care plans • Staff continue to write Kardex
Ensures care is structured and standardized	• Nurses do not practice care planning	• Nurses continue with own nursing style	
Reduced litigation risks	Not tested	Not applicable	Not mentioned
Standards implicit in care planning	• Nurses do not practice care planning.	• Nurses continue with own nursing style	• Use of the system often left one or two nurses on the ward
Prompted evaluation	• Nurses do not look at plans	• Nurses evaluate using manual documentation	• Care plans not updated and evaluated on the system
Professional care planning	• Nurses do not practice care planning	• Nurses continue with own nursing style	• Inhibits the care planning process

Rhetoric of Enrollment	Reality of Experience	Act of Resistance	Rhetoric of Retreat: Later Reports State
Realistic outcome measurement	Not tested	Not applicable	Not achieved
Quality measurement	• Plans are not accurate records of care delivered.	• Plans written in retrospect • Not all details are entered • Nurses use manual Kardex.	• Quality of the care plan not audited • Quality of the care plans not improved—even deteriorated
Access to other libraries	• Slow network link limits this	• Nurses type in details	• Requires further work on care libraries
Enhances discharge planning	• Nurses do not practice care planning.	• Nurses discharge using manual documentation	• Continue to write detailed Kardex
Provides basis for workload	• System not sufficiently developed to test	Not applicable	Not achieved
Supports training and education	• Nurses claim de-skilling.	• Nurses use manual Kardex.	• Prefer to use pre printed care plan • Continue to write detailed Kardex
Assists research	• Data is collected but not analyzed	Not applicable	Not achieved
Enhances inter-ward communication	• Slow network link means this is limited.	• Nurses use verbal and manual documentation to communicate	• Prefer to use pre printed care plan • Continue to write detailed Kardex

6.2 Actants, Interpretative Flexibility, Standardization, and Visibility

We have seen in the case study that users are viewed as actants who flexibly interpret the texts of technology. The nurses do not read the Crescendo system as intended. Thus these SST analytical tools are appropriate for a study of the interaction between the mobilization of power and resistance to it. Viewing the technology in terms of a script has facilitated a comparison between the pre-

sumed and actual user as well as allowing an examination of the inscription of the idealized view of nursing. There is indeed an attempt to standardize nursing practice through the Crescendo system, which may well have resulted in a degree of de-skilling had it been successful. Further, we have seen how the attempts to make nursing visible failed due to the incompatibility of the system with nurses' actual practices: nurses were unable, or unwilling, to deliver and record care. Rather, they had to choose one over the other.

There appears to be an almost unanimous ambiguity as to what *real* care planning actually entails. And there are still more contradictions entailed in the Crescendo record keeping system. There is a tension between standardization and customization at a design level and with regard to the Crescendo system as a whole. In this paper, we have seen that this tension becomes contradiction at the level of the care plan itself. A true care plan for the patients would require so much detail that there would be no time to give care. In addition, where standard care plans fit the bill, they are superfluous as the cases are a matter of routine (that is, if we are regarding them as plans). In reality, management's purpose is a legal retrospective document in case of litigation, which does not match well with the priorities of the nurses.

A key point in the Crescendo system case study is the proven validity of arguments by social constructivists that for a technology to stabilize, the relevant social groups must be persuaded that they need to "pass this way" to solve their problem or accomplish their task. In the case of the Crescendo system, an alternative route to recording nursing care was kept open. The automated care plans were not a substitute for all of the other documentation that had preceded the installation of the system. Kardex remained the preferred record of delivered care. This preference was due in no small part to the persistence of an established culture and routine centered around the Kardex and reinforced by the care plan's negative qualities. Given the necessity, due to shortage of time, to choose between giving hands-on care or writing records, nurses resisted by electing care.

6.3 Enrollment of the User: Evaluation and Training

In the first part of the paper, we described our interest in examining how users must be made interested in the technology and persuaded to play the roles proposed for them by using an SST approach. In case of the Crescendo system, we can note that (1) benefits realization constitutes an illustration of problematization in the way they emphasize the *advantages* that will be delivered by the IS; (2) the formal evaluations can be construed to rationalize decisions already made; and (3) enrollment of the nurses forms the dominant problem for those implementing the Crescendo system at the Royal Hospital, especially the project nurse and IT staff who formulated this as entailing making nurses aware of the

information as the product of the system. This in turn was because it was believed that enrollment to the system could only be achieved if the users were convinced that it was beneficial to them. The motivation for the evaluation sessions was to overcome the levels of hostility to the system on the part of users. Although such resistance is often motivated by fear of detrimental effects (Sauer 1993), in the Crescendo case, the implementation project group estimated that the trouble was not entirely techno phobia:

> *The most difficult problem to overcome is the one of culture change, the bringing together of nurses and information technology.*

Implicit in this partisan view of the system is that a more rational view, unhindered by fear and prejudice, would lead to increased support. Resistance and hostility are perhaps understandable, but nevertheless *irrational* responses to the system. By the time of the first benefits realization session, the users were to be encouraged by the *fact* that the worst aspects of training and change had been overcome. The emphasis now involved the education of potential users as to rewards as well as showing the benefits to existing supporters of the work so far completed. If evaluations can be used to prevent the abandonment of a system that otherwise would be deemed a failure, then there is an element of this recuperation strategy in the benefits realizations carried out in the case study.

It is clear in this instance that the evaluations themselves can be manipulated to downplay negative comments and promote positive ones. In this respect, they circumscribe the legitimacy of opinions, here claiming that if only nurses would open their eyes they would *see* these benefits awaiting them. This was deemed necessary to overcome feelings on the part of nurses that using the system was not of immediate value to them and may even have been detrimental to patient care. One bone of contention was who used the information and for what purposes. The project nurse admitted privately that the information was not really for the users who input the information into the system. The director of nurse managers had the most use for it. Yet it is precisely the issue of who the technology is intended to serve and for what purposes that is at the heart of the benefits realization and evaluations, for users must be persuaded that it is in their interest to use the system.

6.4 Power, Resistance, and Conflict

Using this approach, the case study has shown that this particular technological development is a cause of political conflict, constituted by the existence of opposing groups who are situated in more or less powerful positions. The study also sought to view the force of the inscriptions as contingent: there are

attempts to mobilize power through discourse, but they do not necessarily succeed in making others behave in the required fashion. Indeed, the technology of the text was not read as intended by its authors, since the users' experience acted as a mediator to such legitimate readings.

In insisting on the free agency of the individual while examining the ways in which individual experience is culturally and politically constrained, we can say that the inscriptions of the Crescendo system are not decided by the users, but the users can act against the system's prescriptions. Thus, we can see that technological determinism is not appropriate here since it would have us read off a set of intentions and effects independent of what happens in practice. By operating a nonjudgmental approach to resistance, we have been able to describe how power may flow bottom-up and thus qualify assumptions about the effectiveness of power imposed from the top-down. We were interested in the ways in which ideologies fail to determine, fail to interpellate the subject, and fail to prefer readings. We have perhaps met the goal of providing an account of the weak over the strong, the non-legitimate over the legitimate. By introducing the notion of conflict, difference and contradictions, we have shown that domination—the intention to prescribe a particular form of nursing in this case—is indeed a process rather than a permanently achievable state.

7 CONCLUSION

In this paper, I sought to contribute to the existing literature on the political and conflictual nature of IS, specifically by re-examining the approach to resistance and consensus. I have employed a deconstructivist technique to highlight the dissonance between the rhetoric of texts and the experience of the users. I have also described how power can be mobilized through legitimate discourses, namely reports, formal evaluations, and training sessions. However, I have been keen not to ignore the non-legitimate, marginalized, and possibly less powerful voices of the nurses, whose dissenting views were ignored in reality for a good deal of the time. In so doing, there has been an implicit questioning of assumptions, chiefly that the Crescendo system was intended to benefit nurses. In so doing, the paper implies researchers and practitioners cannot take at face value the account of the IS provided them by instigators of IS projects. It also showed how the technology as text can be scrutinized for its in-built inscriptions of rationalization and standardization. The approach has thus been sensitized to power relations and has also questioned the legitimacy and accuracy of the official documents and arguments. This was achieved by pointing to inconsistencies in those arguments (such as the notion that visibility will benefit nurses) and by exploring the wider implications of the arguments (such as the implications for control by management if nurses' activities are made visible). In addition, Table 1 indicates how it is possible to evaluate

statements in terms of the evidence, contrasting promises with experiences. In addition, an account was given of the (often underestimated) ability of the users to unpick the discourse surrounding the IS implementation and their subsequent acts of resistance.

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