Making sense of complex electronic records: Socio-technical design in social care

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ABSTRACT

Dealing with complex electronic documentation is an integral part of much contemporary professional work. In this paper, we address the design of electronic records for social care professionals in the UK. Recent reforms in UK child welfare have followed a top-down, managerial approach emphasizing conformance to standard processes. The vicissitudes of a major national IT project, the Integrated Children's System, show the limitations of this approach, in particular the detrimental effect it has had on professional autonomy. Following in the foot-steps of Ken Eason, we argue that socio-technical design, by focussing on innovative applications of technology to support users (rather than the interests of the bureaucracy) offers a more promising alternative. A user-centred design exercise is presented to illustrate this approach in action. A novel interface was developed for handling the heterogeneous bundle of documents which make up the social care record, helping social workers make better sense of case-files. The prototype draws on the metaphor of the dining-room table as a way of overcoming the limitations of the computer display. We conclude that socio-technical thinking engenders a shift in mind-set, opening up a radically different design space compared to current design orthodoxy.

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1. Introduction

When tasks are done with paper, current information is usually managed using a two-dimensional space in the form of a desk or often a dining table, on which papers are grouped and arranged meaningfully... Computer displays are much smaller than desks or tables. A dining table is the size of 57 PC screens, 119 Macintosh screens...

A saying of Confucius goes "If, by keeping the old warm, one can provide understanding of the new, one is fit to be a teacher".[1] The epigraph is from a seminal paper by Henderson and Card published some 25 years ago (Henderson and Card, 1986). It addresses the problem posed by the small screen size of the personal computer for performing "knowledge-intensive tasks that require the user to interact with a large number of objects" (p. 211). Fig. 1 in that paper depicts a colleague writing a journal article: she is seated at a dining table facing a slew of papers and books arranged in piles, covering much of the table. The commodious expanse of the table's surface

affords the means for organizing and "making sense" of the diverse materials required to accomplish the writing project. The small screen of the computer, by comparison, is a major impediment to carrying out such complex intellectual work. Henderson and Card present a novel solution to this problem. They describe a window management system which provides the user with a suite of screen-sized "virtual workspaces" called *Rooms*. Each Room is dedicated to a particular task, and provides all the objects (tools and documents) required to perform that task. Although displays may be larger these days and with better resolution, these technical improvements are marginal and the "small screen problem" remains largely unabated.

It is the limitations of the computer display which feature centrally in the case study presented here, and some of the design ideas we propose were also directly inspired by the *Rooms* concept. The paper describes some early developments in a long-term socio-technical design project in UK social care, specifically focused on the design of electronic records for social workers. The problem we address is a generic one. The need to work with complex electronic documentation is a feature of most domains of professional work, the law and medicine as well as our own academic craft, as we saw in the opening paragraph. Gorman et al. (2000) designate such complex files as "bundles in the wild" − they are made up of many

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heterogeneous elements, written by different authors, often over an extended duration. Medical records provide the epitome of the genre, and there is a capacious body of research on the design of the electronic heath record. Social work files are much the same; for the most difficult of cases, a row of volumes can take up a whole shelf of filing space. It is not surprising that the impulse to "electronify" social care records has been a strong force over recent years. But with highly detrimental results, as we shall see in the next section.

2. Re-claiming socio-technical design

In making the case for socio-technical systems design (STSD), we will focus on the vicissitudes of a major national IT project in the UK, the Integrated Children's System (ICS), implemented as a standard system for statutory child protection and welfare services. The failings of the ICS were thrown into sharp relief by the tragic death of a 17 month old child (known subsequently as "Baby Peter") in the London Borough of Haringey in 2007. Press reports of the trial of his mother, and two co-accused men, drew attention to the deficiencies of the ICS and the role it had played. The excessive time taken filling out forms on the ICS and the pressures created by the system's deadlines were highlighted. The urgent need to review the design of the ICS was designated as a key priority for the Social Work Task Force, a body set up by the Government to review all aspects of social work in response to Baby Peter's death (Wastell, 2011). Reporting in 2009, the Task Force called for major improvements to make the ICS "more straightforward and effective for front line social workers in children's services" (Gibb, 2009, p.10).

In a series of papers, the authors (with other colleagues) have analysed the failings of the ICS (White et al., 2010; Wastell et al., 2009, 2010; Broadhurst et al., 2009). In essence, we ascribed its flaws to two major problems: first, the excessively complex forms which social workers were obliged to complete at all stages in handling cases; second, the rigid "workflow" regime it imposed, requiring tasks to be carried out in standardized sequences according to inviolable timescales, enforced by consequential management sanctions ("Targets and terror", Bevan and Hood, 2006) Such micro-management of professional practice had squeezed out discretion and vastly swelled the bureaucratic load. It privileged the management of institutional risk (Munro, 2009) by formulating the professional task in terms of structured recording and management sign-offs (White et al., 2010). Social care records have thus become primarily ways of achieving accountability, providing an electronic audit trail showing that correct procedures have been followed. This privileging has subordinated a crucial part of the professional sense-making process, namely reading and *understanding* complex cases, unfolding across time and space.

In several of our papers, we speculated how the fiasco of the ICS might have been avoided. In particular, we argued that, had a socio-technical approach been followed, a much better outcome could have been achieved (e.g. White et al., 2010; Wastell et al., 2009). By invoking STSD, we are again reclaiming old wisdom; socio-technical thought goes back nearly 70 years to the founding of the Tavistock Institute for Human Relations in London, directly after the second world war (Wastell, 2011). Ken Eason has long been a doughty champion of the cause. Nearly 20 years of experience of user-centred design at HUSAT[2] (Loughborough University) lay behind the publication in 1988 of his seminal book, *Information Technology and Organisational Change*. In the Introduction, Eason unfavourably contrasts the sophistication of technical design tools

with the techniques "by which users can specify their needs" which he laments "have hardly progressed at all":

> Most design methodologies pay scant attention to these issues. It is almost a truism to say that we need socio-technical systems design; the joint design of the technical and social sub-systems in the organization. However, many forces keep the two processes apart (Eason, 1988, p. ix)

Tools are needed to fuse the two kinds of change, the technical and the organisational. The use of such socio-technical methods, he averred, "will speed uptake of information technology ... ensuring that its use is beneficial to the organisation as a whole and to the members of staff who become the individual end users". A consummation devoutly to be wished, but one which continues to "breached in the observance", as our ICS vignette shows.

In making the case for a socio-technical approach in social care, we accentuated STSD's core principles of user participation, minimum critical specification and the optimisation of local autonomy (White et al., 2010; Wastell et al., 2009). Above all, we argued (as Eason would have done) that it was essential to focus the design of systems on the needs of users, founded on a rigorous understanding of their working practices. This is vital primarily to gain reliable knowledge for designing new tools and processes; moreover, without such involvement, the risks of alienation and resistance are aggravated. We noted parallels between the ICS debacle and the problems encountered by other large-scale IT projects in the UK public sector, such as the gargantuan National Programme for Information Technology (NPfIT) in the health service. We invoked Eason's own critical research on NPfIT in doing so. In particular, we highlighted his argument that the development of NPfIT had generally followed a "push strategy, thrusting new technology into the healthcare practices of the NHS" (Eason, 2007, p.258), leaving little room for local design. Eason argued the case for a flexible socio-technical approach to design in healthcare, fostering local diversity and based squarely on user needs. We also believed that had an STSD approach been followed in children's social care, a much better system could well have been developed, one that supported professional practice rather than disrupting it.

Socio-technical theory provides a helpful way of understanding the "fatal flaw" of the ICS. A special issue of Human Relations in 1997, devoted to STSD, contained an article by de Sitter et al. (1997). They distinguished two management paradigms. They dub the first the strategy of "complex organisations and simple jobs"; standardisation and top-down control structures characterize this approach. The second strategy takes the opposite tack, simplifying control and coordination by the creation of self-contained units. Fragmented tasks are to be combined into larger wholes, thinking to be re-united with doing; in other words, a strategy of "simple organisations and complex jobs". The ICS exemplified the former philosophy *par excellence*. But this approach fails for social work, for the elementary reason that the professional task of the social worker cannot be reduced to a simple job. In systems terms, all families are different and the "variety" of the social care system must therefore possess a rich repertoire of responses. As the Law of Requisite variety proclaims "Only variety absorbs variety". This, of course, is the exact opposite of the principle of standardisation, which in the limiting case provides for the same response whatever the input. Rules, policies and procedures intrinsically lack variety; intelligent human agents provide the necessary "variety amplifiers" (Beer, 1994) which enable effective working. The ICS, and its implicit management paradigm, had severely curtailed this.

Reaching into the past for the third time, the socio-technical methodology of Calvin Pava provides another way of conceptualising this core problem, as well as providing an alternative design approach (Pava, 1986, 1983). Pava's main interest is in 'office work',

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