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Mike Robinson

University of Jyväskylä, Finland, [mike@cs.jyu.fi](mailto:mike@cs.jyu.fi)

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## The One that Got Away: Comments on Users and Computers

**Mike Robinson**

*Department of Computer Science, University of Jyväskylä, Finland  
mike@cs.jyu.fi*

It is a privilege and a pleasure to be asked to comment on Morten Kyng's work. The title I have chosen is intended as a wry comment on Kyng himself, and on the influence of the Collective Resource Approach (CRA). In the 1970's, Kyng escaped from his computer science education, when Kristen Nygaard convinced him that "there was more to computer science than computers". He re-entered Computer Science carrying a conviction about the importance of use and context, and a dream of industrial and workplace democracy. The importance of use and context for the design of computer based applications has been widely accepted. The dream remains more elusive — something else that looks like it might have got away.

Sometime in the 1980's, the CRA and related approaches got away from their originators. User centred design, prototyping with users, along with collaborative and co-operative applications, started popping up all over the place — albeit in different, and sometimes strange forms. Kyng modestly recognises the influence of the CRA on Participatory Design (PD), Human Computer Interaction (HCI) and Computer Supported Cooperative Work (CSCW). He also notes the contemporary efforts by Microsoft, Nokia, Lotus, and IBM to involve users in design 'before functionality is frozen'. He remarks (this volume):

In particular, the increased focus on early user involvement in industry and elsewhere, in combination with the emphasis on tools and techniques for design within CRA, increases the risk that people will look at my research and other CRA work simply as a way to modify techniques

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firmly rooted in a traditional, mechanistic approach. As discussed in (Kyng 1994) I am not "against" such use of my research and other CRA work – and it would not really matter if I were. The most important factors shaping the future of our profession are not internal to our science, but external, related to the use of computers. When more general conditions support user influence in design, a traditional, mechanistic approach, supplemented with tools and techniques from CRA, gives more leverage to users than a traditional approach without this "supplement." On the other hand, if the CRA tools and techniques are understood as contributions to a new way of doing design in context, and if the importance of the context for design is realized, then the full potential of the research presented here may be utilised and possibilities open up for reorientation .....

I would like to go further in three ways. First, a claim can be made that the widespread recognition by hi-tech industries of users in the design process owes as much to the CRA as to the older socio-technical school.<sup>1</sup> This is a significant achievement in its own right.

Second, I believe it is reasonable to conjecture that methods and results are inextricably intertwined. 'Mechanistic' approaches are being discontinuously changed by importing serious considerations of use and context. This is witnessed e.g. by McConnell (1996) who presents a sensible analysis of a wide range of approaches, some of which look suspiciously like CRA and PD. Methods are being changed. Nevertheless, one searches such volumes in vain for references to democracy. They are not alone in this. As Kyng (this volume) notes:

..... there has been a rapid increase in the interest in involving users early in the design process. Most of this work focuses on tools and techniques for user participation in managerially initiated projects, and there is very little emphasis on the context for design. In particular, the notion of worker controlled resources and independent worker activities in combination with negotiations with management, as a strategy for influence, has almost totally disappeared.

We will return to this issue.

Third, a claim can be made that 'most of the CRA techniques and tools have stood the test of time', not just, as Kyng states, in PD, but in the wider industrial forum just discussed. There has been a generalisation of social techniques that contextualise use in the workplace, that highlight 'the use of artifacts as a basis for reflection on them', that emphasise "hands-on" experiences (Ehn and Kyng 1987) or "design by doing" (Ehn and Kyng 1991), and tools such as mock-ups and role-play.

All these three points are major triumphs of the CRA, which has been transformed largely by the efforts of Kyng and his co-workers from a marginal Scandinavian idiosyncrasy to a worldwide mainstream current. The central issue is that it has been established beyond reasonable doubt that user-centred design pays dividends. The systems are more usable and effective, and more profitable. Users, when involved in sensible ways in the application and system design process before functionality is frozen, make a major contribution to quality.

The problem is, and always has been that this fits awkwardly with the user as adversarial-worker-trades-unionist, with

worker controlled resources, and with independent worker activity. It is easy to see this from a non-Scandinavian (in my case, English) viewpoint. In his autobiography, Jack Dash, the combative leader of London Dockers' strikes in the '50's and '60's records a formative lesson. His first job was pushing a delivery cart. With the exuberance of youth, he found it a pleasure to race around, sometimes testing the cornering limits of his cart. He was soon put right. Beware the time-and-motion man! Beware making older workers look slow! Beware making the boss extra profit without extra pay! SLOW DOWN! The lesson in Trades Unionism was perfectly correct — and stayed with Dash all his life. But it did take the pleasure out of his work. A small sacrifice for solidarity.

I witnessed a similar demoralisation in my own first job in the early '70's. System Research Ltd. had produced the first adaptive keyboard teaching machines. We were all immensely proud of the devices with a sophisticated cover concealing an internal kludge of computer parts, clicking post-office relays, and spaghetti wiring. An early contract was with a large printing house. We worked closely with Monotype<sup>2</sup> operators to design a training program. We used a combination of observing, working with, discussion and clarification that would probably be called PD today. The program was hugely successful. New workers under previous training regime took seven years to reach full proficiency (i.e. full bonus). Our trainees reached full proficiency in 6 months, including the 3 month training period. There was no doubt that workers' practical and tacit knowledge did result in high quality, more effective systems—as later elo-

quently theorised by Cooley (1980), Ehn, Kyng, and others [e.g. Bjerknes, 1987 #83]. There was also no doubt who gained and who lost in the economic sense. The printing house was able to make a reduction in the workforce. No worker's wage went up, and the overall wage bill went down. Something wasn't right here! Why should workers contribute their hard earned practical and tacit skills to the design process when they got nothing back in return?

Against this unpromising background of technology-worker relations it was necessary for some to try to find a resolution. I opted for working with co-operatives, a restricted vision of workers' control (Robinson and Paton 1983; Robinson 1984; Robinson and Jefferis 1986; Robinson 1990). I even went to the first CSCW conference in the naive believe that 'cooperative work' might have something to do with 'workers' co-operatives'. No such luck! However, around that time the structural weaknesses of egalitarian workers' cooperative were being exposed in practice and in theory by such articles as (Freeman 1973, Fairclough 1986, Landry 1986, Fairclough 1987). I have now given up teaching separate classes on 'co-operation' in these senses. But the king is dead, long live the king (forgive the pun!). One of the weaknesses of co-operatives was plenty of ideology and a lack of feel for practice. From within the heart of the CSCW movement arose a new understanding of cooperation in practice. Not in terms of ideology, principles, and precepts, but in terms of everyday, minute-by-minute working life. Researchers such as (Suchman 1983, Heath and Luff 1991, Harper *et al.* 1994, Star and Ruhleder 1996) were showing that cooperation was not

an external to the work-process, and had little to do with organisational rules about equality. Cooperation was that through which the work-process was constituted. It was central and could not be deleted without deleting the work itself.<sup>3</sup> I am now content to foster this insight in work and design activity. I believe the results will stand on their own, and, when undertaken self-consciously, will enhance dignity, self-respect, and self-confidence. Although there is a connection, I do not believe such work will per se remedy injustice or significantly shift power-relations. This is a task for political action—and some of the actors will be Trades Unions.

From this perspective, I find it difficult to follow some arguments or criticisms e.g. (Kraft and Bansler 1994) on the supposed need to re-ground CRA, in its developed form, in local Trade Union actions.

Let us start from the other end. In the late '60's Trades Unions were reaching the end of the road as the sole guarantor of human rights—and Kyng's interventions were one sign of the coming diversification of guardianship. Autonomous movements and organisations for women, ethnic minorities, gays, and the disabled, not to forget ecologists and animal rights (to name some of the mainstream) articulated rights in ways that could never have been done within one monolithic structure. It is now (almost) inconceivable that the diversity of guardianships and the legitimate interest claims of multiple actors can be rolled back. We are on a path, like it or not, where the prerequisite for participation in societal and work design processes is a parallel and independent process of accumulation of knowledge.<sup>4</sup> I offer this as another

achievement to which CRA and PD have participated, although as part of a current rather than as initiators. I also offer the broader question of how this more general, more articulate, but more fragmented process can be supported. I personally believe<sup>5</sup> that :

- the CRA and related approaches have an even larger role to play here than in the past TU based work;
- that Kyng is right maintaining the concern for democracy, and seeking 'new, more diverse and more intricate partnerships';
- that both application design and democratic rights generally (including those espoused by the ACM) will increasingly render and need to render national frontiers and borders permeable (which used to be called Internationalism);
- that the work from Kyng and his group on the Hypermedia (Kyng 1994) exemplifies, as he claims, the development of CRA into Product Development. But also that, far from being in need of re-grounding in one sector (Trades Unions), it is par excellence an example of how to work with the multiple sectors and actors just discussed. It furthers independent process(es) of accumulation of knowledge without detracting from differences, and without being subservient to vested interests or national frontiers. One might have got away, but many have returned.

#### Notes

<sup>1</sup>This claim would need to be substantiated by research into the diffusion of people and docu-

ments from the CRA.

<sup>2</sup>An old fashioned typesetting machine with 10 multiple keyboards and a drum slide rule for spacing and justification.

<sup>3</sup>This is not the time or place to attempt a summary of the findings of CSCW ethnography.

<sup>4</sup>With apologies to Kyng for the recontextualising misquote, which I hope he will forgive.

<sup>5</sup>For a third worlds application, see (Clement et al. 1994).

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