Encouraging Sustainable Cleaning In Childcare Through Participatory Design

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This paper reports on an example of the use of participatory design to develop behavior change communications in respect of sustainability. It concerns design work for the 2007 Safe and Sustainable Indoor Cleaning project (SASI Clean), a government-funded study into low-chemical cleaning in Victorian childcare. Relevant authorities accept such practices as effective for cleaning, but many centres use harsh proprietary chemicals that impact on the environment and health, suggesting information alone is inadequate in influencing attitudes and behaviour. In the SASI Clean study, participatory design merged designers’ visual communication skills with childcare workers’ insights into the communication context to develop targeted information materials to encourage the use of sustainable cleaning practices. Our example represents participatory design as an innovative technique for harnessing people’s creative ideas to the specificity of the communication task; the scale of current environmental problems demanding responses pitched at the macro and micro levels and observing the need for trust in information and consideration of people’s perspectives. The paper uses a case study approach to enable an exploration of the complex human and organisational issues associated with the project.

Orienting Sustainability Messages to the Needs and Perspectives of Audiences

Sustainability is a broad and urgent objective in many societies. Implementing sustainability measures occurs at two levels; that of the broad social strata through legal and policy frameworks, infrastructure and technologies (Manzini and Jégou, 2006) and within the domain of everyday life through individual action, though people’s choice whether or not to act sustainably is an issue here. Indeed, increased consumption can erode the impact of technical approaches to improving sustainability (Greening, Greene and Difiglio, 2000; Throne-Holst, Stø and Strandbakken, 2007; Uiterkamp, 2000). Stø et al. (2006) argue the ‘rebound effect’ reveals people’s key role in supporting sustainability efforts, the actions of millions of people having the capacity to greatly affect sustainability outcomes; hence governments’ use of behavior change communications to encourage sustainable practices. Yet the diversity of everyday situations to which sustainability messages are directed, combined with the highly differentiated nature of contemporary audiences, suggests that the strategies required to achieve longterm behavior change will not emerge from a basis of assumption, simplification or standardisation.

Participatory design theories posit that an investment in process enables designers and audience members to develop shared perceptions of the field of possibilities and constraints in which communications operate, the objectives to be pursued and the means for addressing them (Spinuzzi, 2005). Using the example of the 2007 SASI Clean study, we argue that participatory design, where audience members take an active part in conceiving designed communications, has value in matching the content and form of communications to the situation and perspectives of audiences. We also
briefly discuss the challenges in using participatory design in multistakeholder projects. In standard practice, designers respond to clients’ idea of the communication task, establishing clear lines of control. Participatory design may be effective in identifying the needs and perspectives of audiences, but we found that stakeholders outside the design process resisted innovations in information form, revealing the problem of differential investments in information and knowledge.

The SASI Clean study investigated the idea that applying low-chemical cleaning in Victoria’s 2,700 childcare centres could achieve significant reductions in sodium in waste-water, embodied energy, packaging waste and environmental toxins. Each childcare facility also sits at the hub of a broad network of people, centre staff and families potentially spreading sustainable cleaning further into society. Currently, relevant authorities recommend low-chemical cleaning in childcare (Infection Control Guidelines of the Department of Health and Ageing; *Staying Healthy in Childcare* 2005), but most Victorian childcare centres use a mix of harsh sprays, disinfectants and detergents. The SASI Clean study sought to show reduced environmental impacts through the use of low-chemical cleaning, while maintaining hygiene (Gardner, 2008, p.7). It also explored the real and perceived barriers to its use in childcare, aiming to employ this knowledge to develop information materials and a training program as part of a SASI Clean accreditation scheme.

Like many applied research projects today, the SASI Clean study drew on diverse sources of expertise. A sustainable cleaning consultant established the study. Microbiologists compared the efficacy of cleaning products. Environmental scientists researched the environmental and health effects of their active ingredients. Officials from the National Childcare Accreditation Council and Community Childcare Victoria sat on the study’s steering committee to ensure plans for the accreditation program fitted policy directions in the sector. However, it was felt that the main knowledge about how to promote sustainable cleaning in childcare would come from childcare workers, staff from four Melbourne centres collaborating in the study. The microbial testing, for example, compared low-chemical cleaning and standard cleaning products on actual surfaces in the centres, the workers seeing *in situ* tests as the most convincing. Project funding allowed us to conduct a series of three design workshops involving 15 childcare workers to develop prototype information materials for a future SASI Clean accreditation program.

Regrettably, the end of design work coincided with unresolved difficulties in other parts of the study and the design prototypes have not been rigorously trialled. This paper duly reports on the use of audience participation in the analysis and planning phases of graphic design, Flyvbjerg (2006) arguing the systematic presentation of exemplars of practice is important to hypothesis testing and theory building. Indeed, in the graphic design literature there is only one scholarly account of the real-world application of participatory design (Forlizzi and Lebbon, 2002) and the field shows limited awareness of participatory methods in adjacent design areas or other social fields, even though each year graphic designers work on countless projects that seek to influence the attitudes, behaviour or understanding of audiences (Frascara, 2004, p.54).
Participatory Design, Individuation and the SASI Clean Study

Participatory design principles challenge designers to consider their ethical relationship to the users of designed artifacts. Three precepts galvanise the field. The first is that the people who will use a design should have a voice in determining its nature (Carroll, 2006). The second sees designers, end-users and other stakeholders as equal contributors to the design process (Carroll, 2006). The third suggests that where the first two principles are applied, designs will be more acceptable to their intended users (Redstrom, 2006). Participatory designers see themselves as facilitators, supporting end-users to fulfill their needs and wishes (Kensing and Munk-Madsen, 1993; Luck, 2003; Sui, 2003; Spinuzzi, 2005). Audience participation was not used in the SASI Clean study simply to create more effective information. An aim of the global study was improving environmental outcomes in significant and lasting ways by empowering people to make choices to change their behavior; a key standpoint for the application of participatory design being the Italian sociologist Alberto Melucci’s argument (1989) that individuation, self-determination and related capacities for learning and action are integral to the operation of today’s complex, media-saturated societies.

Melucci describes current societies as ‘networks of high-density information’, marked by diverse disconnected social realities and diffuse sources of authority (p.45). This complexity suggests a ‘need for greater integration and intensification of control’, as shown in the spread of social institutions seeking to penetrate and control aspects of human life (p.45). However, the scale of social complexity today exceeds direct control. To maintain momentum societies must rely on a degree of autonomy to generate their elements, requiring that individuals and groups operate as ‘terminals capable of self-regulation … producing, collecting, decoding and exchanging information’ (p.45). To balance control with scope for individuation, Melucci argues societies must shift their ‘emphasis from the content to the code of social life, from behaviour to the pre-conditions of action (p.45).’ For Melucci, offering individuals opportunities to communicate, negotiate, produce meanings and make decisions affords them and society the chance to fulfill their potential.

Melucci’s identification of the tension between control and individuation in today’s societies has implications for the diffusion of sustainability messages. The scale of environmental challenges suggests achieving sustainability in everyday practices cannot be left to individuals, but for sustainable practices to become part of peoples’ everyday practice requires coordinating decision-making at the macro and micro levels, so that external processes enable people to arrive at their own understanding of and commitment to sustainability (Buechler, 2000, pp.148-149). Participation in decision-making is one way to mobilise peoples’ autonomy, reasoning skills, capacity for conviction and insight into their own needs and situation. Decision-making processes also operate on a symbolic level, indicating values of empowerment and disempowerment; participatory decision-making potentially representing a dynamic, inter-individual and democratic way of forming commitment to action (Melucci, 1989, pp.163-179).

Childcare work in Australia raises evident issues of authority, autonomy and subjection that affect receptivity to information, childcare workers often being the
passive recipients of information that imposes externally-defined expectations and standards on their daily activities. Lyons (1997) shows childcare workers derive high satisfaction from aspects of caring for children, but are frustrated by industry conditions. These include lower wages for qualified workers than unskilled workers in other fields; the difficult nature of childcare work, which is marked by high levels of responsibility and stress; limited career paths and low social status; and strong expectations of quality from governments, parents and society (Lyons, 1997). The Childcare Quality Assurance Process makes childcare workers feel they have little influence over decision-making, the norms and rules fixed by accreditation seeing practices go largely unchallenged (Jackson, 1996; Lyons, 1997). Sims’s (2002) research into the experience of junior childcare workers notes the relentless nature of cleaning in childcare and its low status as a task. These factors suggest the difficulty of linking cleaning to a vision of positive change for the environment in the childcare context.

In fields like human-computer interaction, information design and product design, though rarely in graphic design, participatory design is increasingly employed as a user research method over standard market research. Hanington (2003) contests the usefulness of market research to design in excluding people’s creative input, sitting outside the design process and lacking deep insight. He nominates two preferable, emerging sets of user research methods, both human-focused and design-centric; those adapted from the social sciences where members of the design team or people themselves investigate the design task in its everyday setting; and participatory methods that allow people to directly contribute their knowledge and ideas to the design process in ways that are integral to design and people’s self-understanding and situation. Sanders (2002) argues that for graphic designers the main challenge today is developing engaging participative processes to enable people to articulate their needs and preferences and genuinely contribute to design, these being important objectives in the SASI Clean study where the need was to communicate information and foster commitment to ongoing behaviour change.

A guide for the exchange of critical knowledge through design was Heron’s (1996) idea of cooperative inquiry, which stresses the importance of intersubjective exchange between expert and lay participants in a project as well as the intent and quality of interaction. The workers knew about the human and material context for information delivery; the designers knew about visual communication and design production. We replaced the usual subject-object relationship of designing for end-users for the subject-subject relationship of designing with end-users (Spinuzzi, 2005). To encourage mutual understanding of each other’s skills and experience, the workshops included discussion of cleaning in childcare, both standard and sustainable, the childcare workers having had some training in low-chemical cleaning. Short information sessions also explained the nature of the design process and graphic design techniques, the idea being that the main problem with design is not its basic nature, but the exclusion of audiences from its practice.

Following Ehn’s (1993) advice that ethics and practicalities are critical in participatory design, we used low-technology processes to allow participants to engage with the various design exercises, which we pitched between work and fun. The workshops comprised a rapid sequence of activities to generate as many ideas as possible and develop the best. The iterative cycle of design was emphasised
throughout, stressing the scope to change the more resolved designs produced by the design team between workshops. The affective ties that developed between the childcare workers and designers were important in sustaining participation over the three workshops. The general openness and friendliness between childcare workers and designers signified the positive group dynamic that developed, in both the main business of design and informal conversations during breaks.

Barriers to the Adoption of Safe and Sustainable Cleaning in Childcare

The SASI Clean study found four main hurdles to low-chemical cleaning in childcare. There was a ‘strong belief that … disinfectants and/or antibacterial agents will achieve cleaner nappy change tables and hands (Gardner, 2008, p.7).’ There was greater concern about the risk from germs than from the environmental and health effects of the products used to treat them, many workers feeling stronger cleaning products mean a ‘safer and cleaner’ indoor environment. There was a belief that ‘green’ cleaning products are ‘less effective and more time consuming’. Finally, those who doubted the safety of disinfectants had typically begun to use vinegar and essential oils to clean, disinfect and freshen air, seeing these as effective ‘natural’ products. The design workshops found various other factors added to the resistance to sustainable cleaning, some childcare specific, others society-wide. These included uncertainty over which cleaning methods were approved by the national accreditation scheme for Early Childhood Services; concern over not passing the Childcare Quality Assurance Process; staff wanting to do the best for the children in their care; a sense that parents expect disinfectants to be used; information overload in childcare, workers feeling overwhelmed by external recommendations on how to do most aspects of their job; a lack of time to reflect on work practices; little control over the products used by after hours contract cleaners; the need to buy cleaning products in bulk to limit costs; little discussion of cleaning practices in the curriculum of childcare courses; and the routine nature of cleaning in childcare, which is so constant that how it is done is easily overlooked.

Of course, any body of information is not received in a vacuum (Margolin, 1997). Guidance on how to clean in childcare competes with a raft of contradictory information on standard and ‘green’ cleaning, cleaning products and cleaning-related subjects like infection control, issued from sources ranging from the evidence-based and informative, the commercially motivated and promotional, and the opinionated, uniformed and misleading. For the childcare workers, the focus on ‘99% effective’ disinfectants in advertising was influential here, where science would judge such products as ineffective (Staying Healthy in Child Care, 2005, pp.26-28). Such claims are also irrelevant since in community settings sterilisation is not required or possible. Our aim was thus to develop information on sustainable cleaning to support childcare centres to negotiate this web of ideas, cleaning information reflecting the general challenge for sustainability messages in contemporary society, which should promote critical reflection, decision-making and action.

Three key understandings emerged from the workshops to shape prototype designs. Firstly, the workers resented the childish imagery found in information directed to them, which they felt addressed them at the same level as the children they cared for, not as adults and professionals. Secondly, cleaning information needed to be configured for specific situations; a proposition supported by the nature of childcare
centres as maelstroms of official and improvised information and by the workers’ emotional discussion of the scope for poorly oriented relieving workers to disrupt all established practices in a centre. Thirdly, group activity and talk in the workshops not only enabled the childcare workers and designers to understand each other’s skills and experiences. It strengthened commitment to low-chemical cleaning. It was thus decided to design a kit of customizable information materials to allow centres to formulate their own steps for cleaning through discussion and group activity, rather than having practices dictated to them.

Conclusion

Carroll (2006) describes participatory design as a ‘major, orienting position in contemporary debates about design methods’ (p.3). It especially helps designers understand the tacit and often overlooked ways in which people conduct and understand everyday activities (Spinuzzi, 2005), hence its pertinence to the formulation of sustainability messages. It should lend itself to public projects where the commitment to socially beneficial outcomes and the absence of the profitmotive allow audience research to be rigorous and creative. Yet Bravo (1993) argues that in the use of participatory processes there is ‘a big difference between making suggestions and making decisions … between having the right to participate and having power’ (p.12). Members of the steering committee resisted the need to diversify information delivery. The idea to target information to relieving staff was the least understood design recommendation although it was a core issue for the workers, suggesting that when the views and needs of people are given primary importance in design organising bodies, project funders and managers can become distanced from design outcomes, a resultant lack of ownership for aspects of what is proposed either jeopardizing the realisation of designs or risking that behavior change communications will fail to resonate with audience members if their circumstances and perspectives are ignored.

References


