

“Designing with users, how?”

Investigate users involvement tactics for effective inclusive design processes

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Abstract

This paper aims to extend the view of Inclusive Design through looking at the practice of design. The main ethos of inclusive design developed at the Royal College of Art (RCA) Helen Hamlyn Centre is to encourage design for social inclusion through different forms of user involvement. Based on the flux in design and design research, user involvement becomes an essential part of the design process. However, this paper urges the attention to the *intention*, *implication* and *impact* of user involvement in design. The focus of this paper is to introduce three tactics that aim to encourage designers to involve users in their processes and to be inspired to create more inclusive and sustainable designs for all. These tactics are *recruiting*, *engagement* and *representing* which are developed referring to general user-designer interaction processes, as well as working with the codes of ethics in research in general. Each tactic is illustrated by examples from authors' personal research studies and Masters student design projects from the Inclusive Design education programme, 'Design for Our Future Selves' an annual competition, lead by Lee at the Royal College of Art. The paper concludes that design research with user involvement should consider more innovative and fluid approaches such as '*ethics-as-process*' to reinforce mutual participation and affirmation between research participants and researchers, users and designers. Although investigating a diverse range of directions, this paper addresses the main research question of how to transform design processes through social inclusion and transform design thinking to everyday life activities.

Introduction

The populations of the industrialised world are aging at an unprecedented rate, escalating welfare and pensions costs. Concurrently, moves towards a more inclusive society aim to bring disabled people into mainstream life and employment. People's varied capabilities and a wider change of attitude, therefore become the ethos of the development of 'Inclusive Design' in the UK context. This obliges responses from different involved partners including governmental policies to address reduced social exclusion, industries to produce products that are more inclusive and accessible, services and innovation opportunities with older and less able people in mind and also with the design community,

who need to develop creative design practice to make good design that is inclusive and subsequently sustainable.

The philosophy of Inclusive Design proposes that users' needs and abilities change throughout the life-course, and should be taken into account during the design processes and design outputs. Such considerations can improve the design of products, environments and services for the majority of customers in ways that are not associated with negative perceptions of age or disability. In addition, such contemplation can be good for business development, enhancing a company's reputation for care and customer service and extending markets and profitability without necessarily adding to costs (Coleman, 1994). During the last decade, similar advances in design approaches have been made including; studies of aging (Smith, 1990; Fisk 1997 and Fozard 1993), universal design (Kose 1998) and trans-generational design (Pirkel, 1988). However, these initiatives only raised the awareness of Inclusive Design (DTI 2005) and not necessarily enabled its *practice*.

The primary barrier for companies and designers to incorporate an Inclusive Design approach is the perceived increase in design development time and subsequent financial cost for what is believed to be a small cost/benefit ratio. In addition, inadequate access to users to consult and ultimately include in the design process, as well as inexperience in dealing directly with users, further restricts the uptake of an inclusive approach. Such negative perceptions often result in commissioners of design not requesting an Inclusive Design perspective.

However, this situation is changing because of regulations and social pressure in design. Sanders' cognitive collage (fig.1) of design research space clearly shows that user participation or involvement has become an essential part in design research development. The concept of '*involving people*' in design processes exists in most design research activities but there are different levels and intentions. Its vertical dimension describes the impetus of the design research approach where design research methods and tools have been introduced into practice. Its horizontal dimension is between the mindsets of experts and people, i.e. between the design-led to the research-led. Sanders includes four main groups of design research which are mapped in the collage and indicated in different positions. For example, 'User-Centred Design' is still a practice based on the experts' mindset, which

is not reflected in its name. At the other end, there is ‘Participatory Design’ with strong co-design approach.

In addition, there are contrasting hierarchical systems to classify the levels and intentions of user involvement. Many refer to Arnstein’s 1969 ‘ladder of citizen participation’ (fig.2). It classifies the level of user involvement through the effect of activities and its degree to which users are related to the ultimate final output. It defines eight rungs of participation that are grouped into three types of progressing participation that the degree of user involvement ranges from being manipulated by experts to becoming involved in decision-making in a partnership relationship with the others, including different experts:

1. Nonparticipation – “ Their real objective is not to enable people to participate in planning or conducting programmes, but to enable powerholders to ‘educate’ or ‘cure’ the participants” (ibid, 246),
2. Tokenism - “When they are proffered by powerholders as the total extent of participation, citizens may indeed hear and be heard. But under these conditions they lack the power to insure that their views will be heeded by the powerful” (ibid. 246),
3. Citizen Power – “ levels of citizen power with increasing degrees of decision-making clout” (ibid, 247).

Almost three decades after Arnstein’s ‘ladder of citizen participation’, social scientist Christina Lindsay (2003) of Philips Design introduced another tool titled ‘pyramid of user-

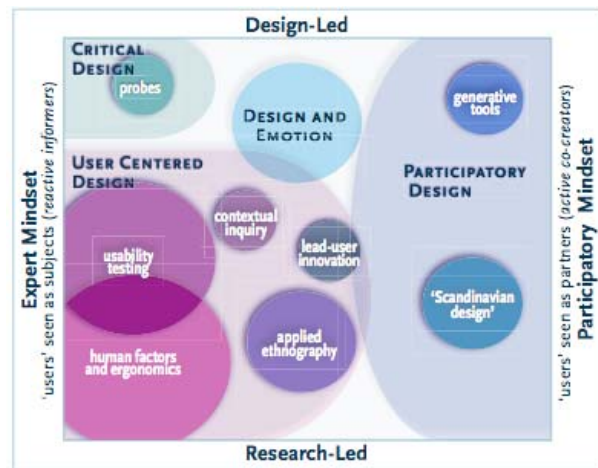


Fig.1 Topography of Design Research by Sanders (2006)

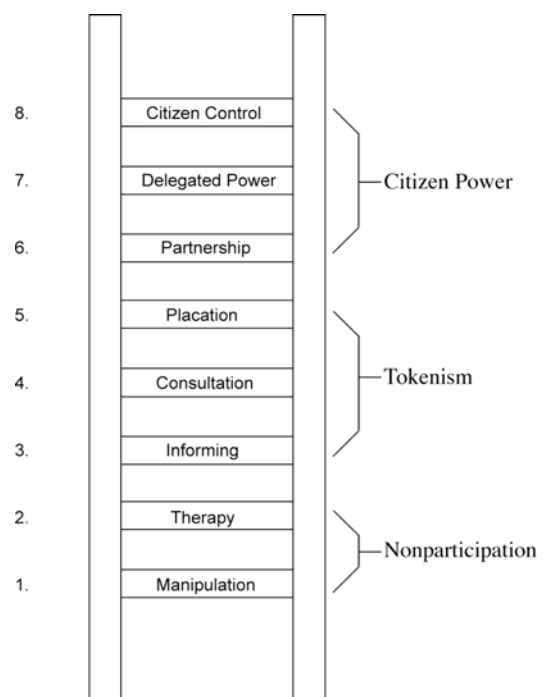


Fig.2 Eight rungs on the ladder of citizen participation (Arnstein, 1969, 1996: 247)

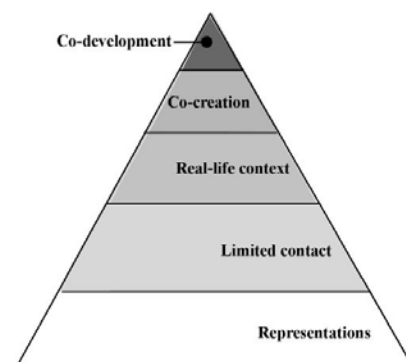


Fig.3 Christina Lindsay's pyramid of user-led design

led design methodologies' (fig.3). This aims to illustrate the relationship between user research methods, the kinds of information obtained through using them, and the relationship of the designer to the users in the process. At the lowest level of the pyramid, designers use 'user representation' and 'I methodology: design for themselves'. These are the most common types of user representation, in which the designer projects an imagined user from his or her own experience or assumptions. As one proceeds 'up' the pyramid, the level of user involvement is raised, by introducing qualitative research methods such as short interviews and ethnographic observation. Thus, users are treated as 'valued colleagues' in the design processes. Lindsay is not satisfied with the co-creating process and her final goal is to put users at the centre of the process. This 'co-development' mode is the beginning of the collaborative design process.

For many designers, user research is already an essential part of design, and this is the result of pioneering and groundbreaking work of designers and design researchers that have brought the issue to the forefront. This paper urges designers and researchers to continue this work but to stimulate a more in-depth discourse of user involvement in design. Although some innovative methods such as 'Cultural Probes' were self-criticised for a lack of formal analysis (Graver and Dunne, 1999), they set good exemplars of how to draw the attention of designers to the importance of user involvement and start the dialogue between the users and designers (Mattlemaki, 2006:60). The other level of concern lays in the actual process of user involvement, i.e. design inclusively *'for'* or *'with'* users? (Thackara, 1995 and Lee, 2007) Therefore, based on the codes of ethics in research, and drawing from social science research methodology and methods, this paper aims to introduce ethical codes as the framework of 'proper' and creative user involvement.

Three User Involvement Tactics

Like Christians' (2005: 144-45) 'codes of ethics' comprising informed consent, deception, privacy, confidentiality and accuracy; Liamputtong's (2007: 32-41) three moral and ethical issues in researching vulnerable people are obtaining informed consent, keeping confidentiality and ensuring safety. In this next section, a holistic and practical framework is shown as a principle for designers to understand the value of user involvement and making it as part of their practice. It contains three user

involvement tactics that aims to make designs and design processes more inclusive. Apart from exploring how to engage with users during the design process, this section will discuss the realities of procuring the right users/people to participate in design and investigate different ways to interact with them.

In addition, a range of case studies will illustrate how users can be recruited for a variety of design projects. Most of these projects are from an annual Inclusive Design educational Awards scheme¹ that aims to introduce inclusive design principles into mainstream design education so that they can become part of the designers practice and diffuse out into industry – over 90% of RCA students enter professional practice upon graduation, often rising to very senior positions. Student projects run throughout the final 2nd year, giving a lengthy period during which Inclusive Design can be explored and practiced without detracting from the students studio work. Those who take part in the competition are directed to work in two ways; firstly, to address the powerful social changes that surround them and to think about their ‘future selves’ and secondly, to empathise with users. The students are attracted by the chance to creatively problem-solve for a 'real life' situation based on user research rather than speculative design. The projects cover a range of disciplines at the RCA from Industrial Design Engineering to Ceramics & Glass. Between 2000 and 2005, 467 students have applied with 331 being shortlisted. More than £20,000 has been given out in research bursaries to each shortlisted project and in total £40,000 in prize money from industry and voluntary sector sponsors has been awarded. Over the last five years, the projects have focused on very specific problems experienced by people, but have done so in ways that were both practical and life enhancing. These case studies demonstrate the design innovation and social potential of student work that was developed with groups of ‘critical’ users, who could challenge the design briefs and stretch the creative envelope as well as affording the designers to build relationships with ‘users’ and develop designs together that reflect and improve peoples lives.

1. Recruiting – contextualizing the design idea

¹ Design for Our Future Selves, organised at the Helen Hamlyn Centre for Royal College of Art masters students

In order to encourage social inclusion through design, it is essential to arouse an internal transformation from the design community. Historically, design has been practiced as an egocentric processes, with the designer looking within their creative selves for answers that address a problem. Each designer tackles a design brief using their own aesthetic values and their own likes and dislikes because it is much easier (Moggridge, 2001), but can often, through it's singular approach, lead to design exclusion. This directs designers to not design from their own assumptions but to understand the local and cultural context as part of the big picture (Myerson, 2007). In order to work inclusively designers need to contextualise the design ideas or design questions as a first step towards the recruiting process. This is followed by the need for designers to define the social situations of their projects. Thus, when starting to recruit 'users' there are three key factors to be considered (Yelding and Cassim, 2007):

- a. *“Who and where are your users? Existing users of products or future users who might give relevant insights? This sampling process depends on what issues are been explored. Lee (2006) explains how interaction design student, Sohui Won designed ‘Weird Objects’ for autophobics and those who experience loneliness. Won started her user research by empathising with autophobics through reflecting on her own personal experience of being alone. Won joined an on-line phobia group and participated in on-line discussions as both a participatory observer and a user. This enabled Won to explore her own situation as well as discuss the issues of fellow phobics and possible future users of her designs.*
- b. *How many of them? Large-scale survey or small-scale discussion for sufficient stimulus for ideas? The important factor is how representational is the group. It is better to have a diverse sample, even if it is small, in order to cancel out biases. This leads to the ideas of ‘working with extreme users’, which can arouse different discussions from our own peer groups. Apart from working with older and people with disabilities, designing specific user engagement processes between different groups is also a way to work with small groups but get a higher representative profile. For example, originally, a design team named *dot*^o wanted to work with a group of eight to ten year old children but had no experience of working with children. Lee, as an inclusive design researcher (Lee 2007) was able to advise and help them set up a*

collaboration with a high school. Instead of working directly with primary school children, the design team worked with an education project manager and five high school students (fifteen and sixteen years old). The collaboration between the school and the design team ran two design workshops each with a group of twenty-five school children (Fig.4). In total the design team engaged with over 50 participants.



Fig. 4. Perception Workshop. Three physical games represent three elements of game: team leading, prediction and interactivity (from left to right). All games designed and produced by the Dot° team. Photos by Yanki Lee

- c. *Where to recruit?* Approaching organisations is recommended as the best start. Other researchers also put advertising through different media. For design students or academic projects, there is often not as much resources available compared to commercial market research or Research & Development projects that can afford to find people by population screening. In recruiting a large number of varied users, Bichard (in Hanson, 2007) placed articles in user group newsletters to recruit people for toilet design research. This strategy reached a large proportion of perspective users as well as gave newsletter editors articles for publication. If inclusive design is going to be practised over a long term period, the building of a network of users may save time repeatedly trying to attract potential users. This has been practiced by the Royal College of Art Helen Hamlyn Centre (RCAHHC) for a number of years. The centre now operates as a facilitator in encouraging designers to design with users. Its ‘users data base’ currently contains over 78 users comprising older and people with disabilities. However, there remains fundamental issues of this approach within the inclusive paradigm in that designers do not learn the fully engage with users and often the designs are still designer-led and therefore design *‘for’* and not necessarily *‘with’* people. Users are often testing objects and giving input into existing design ideas and therefore have passive roles in

the design process. A further issue with such a data base is that it has become extremely popular with designers and is heavily used and consequently a number of are continually invited to participate in different projects. These users shift into 'professional users' since they become very familiar with the processes and their comments may no longer be as representational of their group.

2. Engaging – obtaining informed consent, incentive and confidentiality

After locating and recruiting the 'users' for projects, the next step concerns the actual interaction. Liamputtong's (2007: 32-41) discussion about the moral and ethical issues of researching with vulnerable people stresses that obtaining informed consent from participants is essential in conducting any research with people. In addition, special sensitivity is required when working with most groups of vulnerable people. Compared to social science research areas, design research tends to be more about practical subjects opposed to deeper personal investigations and aims to explore everyday life situations that stimulate the development of new design ideas. One of the best examples of how designers engaged with users was the 'Cultural probe' study developed by a group of design researchers from the Royal College of Art's Design Interactions Department (formally Computer Related Design). Cultural probes consisted of packs containing disposable cameras, maps with instructions, stickers and pre-stamped postcards that were to be used by research participants to record their interaction with the research. However, besides an agreement to participate, no formal informed consent was sought. Instead agreement to participate in the research was given through the return of completed Cultural Probe packs. Since the Presence project (1995), this innovative research method has become very popular in field of design research and has been applied to both experimental studies and business projects.

However, the role of users in the probe studies is still remains passive. In order to encourage more active engagement between designers and users and fulfil the four criteria of morally valid consent: disclosure, understanding, voluntarism and competence (Bosk, 2002:5-65), in the case of the RCAHHC, we arrange face-to-face meetings for our design students and 'design partners'. Generally, this type of meeting follows a 'focus group' format, with six-eight people discussing a specific topic.

However, the RCAHHC call these meetings ‘user forums’ since they usually unmediated in the traditional sense to encourage free but stimulated discussions between designers and users. It is a forum for all participants including both users and designers to discuss and brainstorm new ideas that encourage design *together*. For users who are interested in design, the experiences of these dynamic and interesting discussions, about design, and with designers are the best incentives for them to participate. As one of our long-term users, who is visually impaired and a trained textile designer, comments that she “really enjoy[s] the intellectual engagement” with design students and is “glad to be part of their creative process”. This user has worked with different design students on a voluntary basis to provide both advice from the perspective of an ex-designer *and* a person with visual impairment. The users reward was from seeing how her comments and input influence the final design, as well as the enjoyment from meeting and engaging with fellow designers. For commercial user forums, monetary incentives from around £25 per day with travelling costs can be seen as an average payment for a few hours participation in a user forum (Yelding and Cassim, 2007:156).

Throughout the engagement process with users, the crucial issue concerns confidentiality. Liamputtong’s (2006: 32-41) makes a very precise point that the most disturbing and unethical harm research can have is when the participants are damaged by the full disclosure of their private world. In our cases of design research, the participants cannot refer to either the designers or fellow users. This is actually related to both intellectual property rights and legal protections of privacy such as the UK’s Data Protection Act (1998). This often presents a dilemma for the RCAHHC as on one hand we are encouraging our design students and designers to work with users and on the other hand, the stipulations of intellectual property law are guiding them to not show their ideas to others in order to protect their inventions.

How can this dilemma, of confidentiality, can be solved? The RCAHHC suggests that the promotion of ‘designing with people’ where ‘respect and trust’ are built between the two parties maybe an initial start. We also propose to use the term ‘collaborators’ for equal exchange in the processes. Our practice is to make both parties aware of necessary consent forms as well as forms that cover confidentiality. A case study of the RCAHHCs experience of this matter can be seen in the process of designing the ‘Tongue-Sucker’ (fig 5), the winner of INDEX award to improve people’s

lives. ‘Tongue-Sucker’ was designed by a group of design engineering students, it is a simple, effective life-saving device that allows an untrained bystander at an accident scene, to secure the airway of an unconscious casualty. After consulting experts and conducting simulated stress conditions with a range of people, the important part of user involvement in the project was to work with a group of older and experienced users that were recommended by a user researcher (Lee, et al. 2006). This special user forum was used to reinterpret different emergency situations and how this new device could change people’s responses in an emergency especially from older and experienced users. The result was a new package with *inclusive* display instructions, which gave greater access to



Fig. 5. Tongue Sucker and its pack (left) and user forum with older users, photo by Yanki Lee (right)



those who may be called upon to use of this new emergency device. Before the user workshop began, all the people who were invited to this design processes needed to sign both consent and confidentiality forms. Thus, with the paperwork in place protecting the users and the designers, the designers felt free to discuss their developing ideas to outsiders. However, the designers were also moderated by user research facilitators to avoid any questions that invaded the users’ privacy and bring the focus back to the issues raised by the design concept in relation to their everyday life. This ‘two-ways’ or mutual relationship in design research is becoming more common and needs more attention for further studies.

3. Representing – accuracy and translating into design

Finally, all the findings from interacting with users are brought back to the design processes by designers. According to the ‘*Research Governance Framework for Health and Social Care*’ published by the Department of Health in the United Kingdom (2005:7), “*the dignity, rights, safety and well-being of participants must be the primary consideration in any research study*”. This framework is developed for medical research and applied to those being researched i.e. both medical staff and patients. When this framework applies to design researches especially when designers translate the findings and present the design outputs, there is another dilemma: people become co-designers and need to be acknowledged, but at the same time, this recognition might cause harm for the privacy of individual in public domain.

This discussion can refer to the discourse of the Data Protection Act: *what counts as personal data and what is covered by the Act?* Guide to the Act (Gould, 2006:5) suggests the use of ‘codes/identifiers’ to represent those who are researched and store their pseudonymised information relating to the research project. Pseudonyms rather than real names are used to present the verbatim explanations of those being researched

(Liamputtong’s, 2007: 37). For design research that adapts an inclusive design approach, the situation is different. For example, Laura Perryman (Printed Textiles, RCA graduate 2007) asked ‘Can printed textile designs improve people’s quality of life but still have aesthetic value?’ She initiated an aesthetic

study starting with experiments with patterned textile surfaces placed on a variety of tactile surfaces and forms. Based around a suggestion from her user research tutor, Perryman chose visual impairment as the main investigating area. Her rationale for this choice focused on people losing vision relying on their sense of touch to carry out many day-to-day activities. A One-to-one design partnership was initiated with Alison Julal, a trained fashion knitwear designer, who had recently become visually



Fig. 6. Alison with Laura’s prototype (left) and one of the final outcomes (right) photo by Laura Perryman

impaired and was currently learning strategies to help maintain her independence. Instead of starting with functional questions, the discussions were focused on Alison's personal preferences. Towards the end of this project, with more developed design ideas, a detailed layout study was carried out on Alison's home, which identified more applications for the design. The process also helped Alison to rethink and improve her living environment whilst helping the development of the student's design. This case shows that within the design research process a two way mutually beneficial relationship was developed, yet due to the one-to-one nature of the research the 'users' identity needed to be brought to the forefront of the design process as part of the development of the design and in recognition of their particular expertise. However, objectivity within the design research is also needed to separate the personal and focused on the specific experience in relation to the design topic.

Conclusion and next steps – Ethical Design Education

Concern about the practical issues of user involvement in design from the three introductory tactics, the challenge for Inclusive Design practices can be extended to other levels. These explore issues like ethical design education and design awareness exercises for the public. This further development can be referred to as an '*ethics-as-process*' approach (Ramcharan and Cutcliffe, 2002) that views design research as a process with its own unique ongoing and negotiated ethical dimensions. It concludes from the same logic of this paper that 'user involvement' is a two-way interaction between designers and users, and that sometimes third party agents might need to facilitate, moderate and translate between actors.

Inspired by Dreyfuss, Papernek and other humanitarian design practitioners, many organisations such as the Helen Hamlyn Centre and the Centre for Adaptive Environments, are working as agents of change to provide platforms to let user participation happen. As the same time, they also insert the 'code of ethics' into creative design processes to protect users.

In addition, educating and helping designers to work with users can produce better and more sustainable design for everyone. However, the biggest challenge currently facing Inclusive Design practice is how to recapture the aesthetic process of design whilst also considering the production of better designs for 'sustainable development' (Brundtland, 1987). As Scrivener (2007) commented,

'design' is separating with traditional art and design domains, and moving into the areas of engineering and service-oriented design, which is process and function oriented. The aesthetic element of design, which is shared with art and craft, is still the core knowledge of the design professions but is not being further developed and involved in the discourse of Inclusive Design. This echoes Szenasy's (2007) discussion about the Ethics of Design or as she has identified it Ethical Design Education. She probes with her students around the concerns of the social responsibility of designers and how designers can become active holistic participants to work inside a 'web of relationships' and connect to the 'web of life' (Szenasy, 2007:21). Such an approach requires self-reflection within the design community.

Finally, the issue of public awareness of design is crucial for a review of user recruitment and needs all parties' co-operation. Designers need to step out of their comfort zones and explain to the public how they create things that will affect their lives. As Dreyfuss reminds us, there is a considerate, sympathetic thought behind every great object (in Szenasy, 2007:23). This empathic design should be embedded within a design thinking which relates to everyday activities of public and is not limited to designers only.

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