Designing inclusive environments: rehabilitating the body and the relevance of universal design

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EDITORIAL

Designing inclusive environments: rehabilitating the body and the relevance of universal design

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Introduction

An important part of the experience of disability and rehabilitation relates to the designed environment, or the material world that each and every person, by necessity, interacts with on a more or less constant basis. From the shape and size of cutlery and crockery to the width of doors and corridors, the design of everyday artefacts are an indispensable, and constitutive, part of people's functioning and significant in shaping their levels of independence and well being. The reality is, however, that much of the designed environment is inattentive to the needs of many people, and this is particularly so for individuals with different types of impairment. It is well documented that for many disabled people the design of objects may inhibit their independence, ranging from steps into buildings preventing ease of entry for wheelchair users, to fitted kitchens and bathrooms with pre-fixed fixtures that are usually inflexible, and not able to be easily adapted to respond to changes in a person's physiological or bodily functioning [1–3]. The outcome is often disabled people unable to function, or placed into dependence on others to enable their access to, and use of, different parts of the material world.

Such situations are an important focus of the work of occupational therapists and others involved in disability and rehabilitation. For rehabilitation professionals, one of the major challenges is crafting environments that work well for individuals recovering from illness, or enabling them to adjust to impairment or changes in their physiological and/or cognitive status. This is the focus of universal design too, a social movement based on the understanding that the design of everyday life, comprising all the products and services that people consume, are inattentive to bodily complexity, and rarely sensitised to different forms of physical and cognitive impairment [4]. For proponents of universal design, social and cultural values and attitudes are responsible, in large part, for the shaping of artefacts in ways whereby many individuals, who fail to approximate to a normalised body, may find themselves disabled, or unable to use the different elements of the designed environment.

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The potency of the designed environment, in debilitating, potentially, disabled people's ease of usage of spaces, products and services, has led Sanford [3] to coin universal design as a rehabilitation strategy. For Sanford [3], universal design's commitment to the equitable use of designed environments, whereby designed artefacts are sensitised to, and accommodating of, diverse bodily, sensory, capabilities, may be a basis for liberating disabled people from disabling design and, consequently, enhancing their autonomy. Sanford [3: back cover] suggests that the application of universal design has potential to enhance ''performance and participation'' for disabled people, ''while mitigating the stigma and segregation that often characterise traditional rehabilitation design strategies''. Others concur, with Burgstahler [5, p. 1] noting that universal design places a ''high value on both diversity and inclusiveness'', while Steinfeld and Danford [6] suggest that universal design, by redesigning environments to facilitate ease of use by all, or at least by a high proportion of the population, may reduce the financial costs involved in rehabilitation.

These are powerful and, potentially, far reaching observations and indicate that evaluations of universal design, in relation to its relevance to rehabilitative strategies, ought to be a more explicit element of research agendas. This observation was part of a bid to the Economic and Social Research Council (ESRC) in 2012 to fund a seminar series bringing together academics and practitioners to discuss the interrelationships between universal design, disability and rehabilitation [7]. The application to ESRC was successful and has funded three seminars as well as an outreach workshop, held with the Southwark Disablement Association in London [8]. These events occurred between April 2013 and March 2014. The case to ESRC was that there was limited academic attention or critical scrutiny of the overarching principles of universal design, how these are understood, and, subsequently, placed into practice. The purpose of the seminars was to redress these lacunae by describing and evaluating the underlying assumptions about design and embodiment shaping the content of universal design, focusing on its prognosis of what ought to be done to attain an inclusive environment and how to achieve it.

The papers in this issue reflect participants' disquiet with the theoretical and conceptual content of universal design, and the epistemological and methodological bases shaping its understanding of disability and design. What seems to dominate is a positivistic, scientific, tradition, placing emphasis on the production of technical, objective, knowledge and its applications.

Here, a dominant focus is process-based techniques, and the evaluation of universal design in relation to issues of technical feasibility and operational outcomes [9–11]. There is less evidence of the deployment of alternative epistemological frameworks by proponents of universal design, and limited engagement with moral and political philosophy, or substantive matters that relate to the interrelationships between design and people's flourishing and suffering within the world. There is also vagueness, in some of the literature, about key terms underpinning universal design, such as ''universal'' and ''universalism'', and seminar participants were keen to explore the content of such foundational concepts, and their role in shaping universal design discourse.

In the rest of this editorial, we outline some of the key challenges relating to the development of universal design, and discuss how far it may be possible to realise its radical intent in seeking to overturn deep rooted designer conventions that rarely respond to the needs of disabled people and impaired bodies. We draw attention to the tensions between, on the one hand, the propagation of a universal design discourse that is challenging of design approaches that fail to respond to corporeal diversity, and, on the other hand, the incorporation of much universal design practice into conventional, conservative, design methodologies. Such methodologies, and their underlying epistemological bases, appear to delimit the understanding of person-hood to bodies-without-impairment, or cultural norms that define the universal subject in ways whereby disabled people are regarded as aberrations. This observation leads contributors to the special issue to interrogate how far, and in what ways, practitioners may be able to develop universal design not only as a ''design strategy'', but as a political stratagem that has the potential to transform the dominant world view of universal ablebodiedness [12,13].

Rehabilitative cultures and the possibilities of universal design

Universal design may have a major role to play in rehabilitation by fostering environments that work well, by facilitating independence and means for people to act in spontaneous, proactive, ways. A progressive rehabilitative culture reacts against subjugation and control by seeking to promote the care of subjects, or the creation of contexts whereby enhancement of people's autonomy and well being is paramount. This is the central thrust of universal design in which it is claimed that ''design for health and wellness leads to a reduction in disability'' [14, p. 108]. While this statement is not incontrovertible, it points towards the potential benefits of universal design in creating environments that may facilitate and support rehabilitation. The universal design principle of flexibility in design, or the design and development of accessible products and services that are intuitive and easy to use, has the potential to create enabling environments. These range from the design of adjustable furniture, responsive to people of different heights and/or bodily capabilities, to the development of front loading washing machines, such as Toshiba's TW-Z9500 model featuring instructions in Braille and an angular drum to facilitate ease of retrieval of clothes by people who use a wheelchair.

Such products are not perfect or able to respond to every possible variation in bodily interactions with design. They highlight, however, that any notion of ''one size fits all'', or the rationalities of a design culture driven by scale economies and product standardisation, is tantamount to social exclusion, and likely to create inequalities of access to, and usage of, the designed environment. This underlying proposition is a universal ethical imperative against design that undermines the capacities of people to facilitate their ease of movement through, and use of, different elements of the designed environment. This imperative underpins universal design's declaration of ''design for all'', or the production of artefacts and environments usable by anyone irrespective of their bodily status or deportment. This is a radical challenge to the status quo, including the professions and practitioners that, through adherence to conventions in design practice, do little to challenge or change the values and practices sustaining the (re) production of disabling designed environments.

Universal design has potential to direct designers' attention towards ethical standpoints, and to confront the social and distributive consequences of not only the design process but also the effects of designed artefacts on bodily integrity. While the notion of bodily integrity, premised on the realisation of personal autonomy and self-determination, is embedded into the principles of universal design, it is rarely defined or discussed by its proponents. It is implied by principles such as ''flexibility in use'' and ''equitable use'' that, for Lid [15], directs designers' attention to human plurality, and the many ways in which bodies may interact with (in) designed environments. Such interactions, and their manifold complexities, can be understood as part of a universal human condition, of people struggling to be part of the world in ways whereby their self respect and dignity may be enhanced. This is the challenge for universal design advocates, to articulate and perpetuate, through practice, the ''values in common'', and to appeal to a sense of the universal in which people from different backgrounds may be able to create relational spaces ''where inter-subjectivity and reciprocity become possible'' [16, p. 166].

Linnnett's observation is a challenge to universal design practitioners to outline, and articulate, what they understand the notion of ''the universal'' to mean, and how far, and in what ways, it is able to respond to the manifold complexities of human subjectivity. Universalism is not an easy or straightforward term to understand, and there is much debate as to its meaning, and different ways in which it can be used to shape practice. In universal design, what values are being universalised and what are the claims advanced in relation to the status of disabled people in society? One appeal of universalism is in shifting emphasis from a focus on disability, and differing capabilities, to what is held in common by people. But there is the danger that the definition of the universal is no more than the normate body, or what Garland Thompson [17, p. 1] describes as a ''severely able-bodied . . . phantom figure who is the imagined user''. Similar observations have been made about rehabilitation practices in seeking to assimilate the impaired body into a state of ablebodiment, or what McRuer [12, p. 1] describes as masquerading ''as a non-identity, as the natural order of things''.

The danger here relates to the (re) production of cultural imperialism, or what Iris Marion Young [18] regards as value systems that while asserting that universalism is ''after identity'' propagate precisely identity types that do not necessarily recognise disabled people nor enable them to flourish. The challenge for universal design discourse is how to articulate a universal human ethic that is simultaneously responsive to the specific, situated, nature of human subjectivities. It is this ethic of caring for all, by recognising people's humanity and situatedness, that is, or ought to be, the basis of a universal recognition of human worth. For Lott [19], the tricky question remains, how is universal recognition to be practically enacted, both as a political project and practical way of doing things responsive to the differentiated ''needs of all''? The response by universal designers has been vague insofar that the aspirations of designing for all are tempered with the recognition that it might not be possible to do this, in all instances.

Instead, much effort in developing and promoting universal design is focused on technical, process centred, issues relating to the development and refinement of techniques to enable access to, and usability of, designed environments. Significant efforts, by major research teams, are devoted to creating technical know-how, and devising means to facilitate ease of access to, and use of, different products and services. This is an important part of universal design but there are questions about the role of technology, and process-based methods, in contributing to the wider universal design ideal of design for all. For instance, there is the question of the extent to which design technologies are able to shape user behaviour, and experiences, in ways whereby they are commensurate with intended, desired, outcomes. How far is universal design able to side-step what Ihde [20] refers to as the ''designer's fallacy'', or an unrealistic expectation that a designer can anticipate the interpretation and appropriation of things in their use? Contributors to this issue highlight the fallacy, with Ann Heylighen noting: ''I have confronted the utopian character of universal design with the indeterminateness inherent to design, and the inevitable distance between designer intent and user experience''.

Ann Heylighen's observation draws attention to the complexities in design that require further exploration. Significant is the indeterminate nature of technology, and that technologies are never neutral, stable or passive in shaping experience. The interactions between techniques, technologies, designers and bodies are rarely captured by writings about universal design, and a challenge is to understand the ''technological textures'' of the design process, or the ways in which technology is implicated in, and constituted through, mediating the outcomes of human actions [21]. Here, technique, design and dis/ability are co-constituting, or, as Barbara Gibson, in this issue, has said, ''persons are made, transformed, and shaped through their relationships to other human and non-human entities, which are also transformed in the doing''. The point is that in seeking to design for diverse bodily needs, designing itself generates new needs and/or demands upon what is designed to the point that there is never any settlement or finality about what will work or not for different people.

The form and content of universal design practice is also shaped by scalar, interdependent, relations between institutions and places, and there are interesting questions to be broached about how far universal design is transmitted between different socio-institutional and geographic contexts, and with what impacts on universal design knowledge and practice. How far is universal design able to universalise its principles in ways whereby cultural traditions are part of an acculturation of particular local practices, so local traditions are not subsumed within a universal standard? How far is there evidence of a cultural specificity to the ways in which universal design is both received and understood in different countries and, consequentially, with what implications for how it is translated into practice? These are questions in search of a research agenda insofar that there is little data or information about the varieties of ways in which universal design, as a series of abstract principles, is interpreted and shaped by national and sub-national socio-institutional processes, and with what impacts on the nature of designed environments.

Proponents of universal design claim the relationship between designers and users is crucial in creating design for all, or sensitising the designed environment to as many people as possible. Part of the process is to take users' views seriously, and the shift from hierarchical models of design that position the user as a remote, peripheral, figure. This is a laudable, and important, part of the universal design ethos yet it raises critical issues and concerns. Foremost is how to change the social hierarchies of design in ways whereby the skills and expertise vested in designers are not lost, or where their expertise is discounted, even dismissed. The issue is not about expertise *per se*, or the knowledge vested in any professional, but more the potential for experts to deploy their power in ways whereby some social groups benefit and others do not. In such circumstances, a relevant question to ask is what might it entail, practically, to decentre authority in ways whereby the integrity of expertise, or the deployment of expertise as part of a progressive realisation of people's autonomy, is upheld by providing the scope for pursuing the universal ideal of a collective sense of being and belonging.

We also concur with De Preester's [22, p. 276] point that users are not necessarily experts ''when it comes to faithfully describing and analysing . . . experiences of acting in a techno-logical world''. This is not to discount their experiential and embodied knowledge, but more to evaluate how designers may be able to appropriate such embodied knowledges and make sense of them. This is part of a debate about empathetic design or what Battarbee [23, p. 188] describe as ''leaving the design office and becoming – if briefly – immersed in the lives, environments, attitudes, experiences and dreams of the future users'' and ''internalising the requirements of the users''. This is still in its infancy, and the underlying ethos of immersion in someone else's life is complex. Is it possible for designers to insert themselves into the consciousness of others, or create the conditions for what Greenblatt [24, p. 52] describes as ''psychic mobility''? How can designers understand bodies in interaction with design, and what tools, techniques and instruments may enable the multi-sensory nature of the body to be apprehended in ways whereby non-reductive, stereotypical, conceptions of the body are avoided?

Irrespective of the technical and embodied processes by which designers seek to understand people's interactions with design, contributors to the issue question how far it may be possible to realise universal design as the norm, or the mainstreaming of its products and services. It is the case that many universally designed products are only available as expensive be-spoke design and form part of a specialised, niche, market, unaffordable to many. There is the conundrum of universalising universal design when so much of the design process is shaped by commercial values and commodification, and where a cost-value, or balance sheet, mentality may influence what can be developed, and at what cost to consumers. If universalism is predicated on equality of status, how far is this realisable if a person's access to universally designed goods and services, and their subsequent uses of them, is shaped by, primarily, market exchange? The faith of many proponents of universal design in the market to diffuse relevant knowledge, and to be the catalyst of universally designed innovations, needs to be tempered by asking what the limits of markets are. In this respect, what should the role be of state or legal interventions to ensure that a fairer, equitable, world can emerge through the development and delivery of appropriately designed environments?

The collection

Universal design is committed to social justice for everyone, whoever they are and where ever they may live, by providing the means for ease of people's interactions with the designed environment, in ways whereby there is sensitivity to variations in bodily comportment. Universal design is trans-contextual in seeking to propagate principles that apply to everyone because of the commonality of their humanity, and a commitment to universal values such as the right to bodily integrity. These are part of a long standing philosophical tradition concerned with enabling people to live a good life premised on human dignity.

Notwithstanding this, universal design is part of messy, indeterminate, processes, uneven in scale and scope, and the contributors to the issue are interested in the socio-political relations of universal design including the contrasting ways in which universal design is understood, and put into practice, in different parts of the world. The understanding here is that universal design is not a fixed entity, and it is characterised by a mixture of socio-institutional relations and processes, operating across a range of social and geographical scales, industrial sectors and governance regimes. This implies a complexity to universal design that requires further exploration and explication.

The issue comprises eight papers, and they elaborate themes outlined briefly in the last section of the editorial. Jerome Bickenbach's paper begins the issue by drawing analogies between disability social policy and universal design, to question how far the principles and practices of each may provide insights into reconciling the tensions inherent between universalism and targeted particularism. For Bickenbach, the ongoing conundrum is how far social policy should be universal, ''for everyone, or targeted to specific populations and thereby tailored to their specific needs and requirements''. The same applies to universal design, and Bickenbach's analysis draws attention to the ''dilemma of difference'' or how far, in seeking to achieve social inclusion for disabled people, should any political programme respond to socio-cultural differences or ignore them. Bickenbach suggests that universal design has, to date, said little about this and proceeds by largely ignoring differences, whether they are societal or individual and, as he concludes, the concerns of universal design professionals are, primarily, with advancing technocratic, process-based, practice and professional paternalism.

Other papers pick up on some of the broader themes highlighted by Bickenbach, and Barbara Gibson's paper highlights the significance of universalisation as a frame of understanding. She suggest that the idea of the ''universal is risky from the outset because it will always rely in some way on a view of legitimated and standardized bodies''. For Gibson, both universal design and rehabilitation raise issues about the colonisation of the body by technology, and the application of techniques of body management that run the risk of a denial or diminution of difference and diversity. However, the contribution of the paper is its focus on the messiness of the body, its indeterminate and never finished state, and rejection of the notion of independence as a necessary, socio-ethical, starting point for social practice, whether this is universal designing or rehabilitation work.

Myriam Winance's paper echoes some of Gibson's observations and suggests that universal design should ''abandon its claim to universality''. By exploring disabled people's mobility, she suggests that a rehabilitation approach incorporating diversity within the context of a universal-type is likely to fail, precisely because of the diverse ways in which people interact with the designed environment. As Winance notes, the creative potential of design ought to be harnessed to design ''a plural environment with varied resources'' rather than pursuing approaches that reduce diversity ''through the unity of the universal''. Likewise, Inger Marie Lid's paper argues that a key challenge for universal designers is to capture, empirically, the complexity of people-environment interactions in ways whereby designing for all may become much more than an empty statement or an idealistic aspiration. For Lid, universal design is a complex, relational, phenomenon that requires academics and practitioners to theorise, and put into practice, the diverse ways in which people interact with the designed environment. As Lid concludes, ''practical universal design strategies must be based on theories of human plurality and human–environment interactions''.

Claire Edwards and Gill Harold's paper explores an emergent architectural paradigm called DeafSpace that promotes d/Deaf cultural identity based around sign language. Their paper is important as it is one of the few to consider the interrelationships between d/Deafness and universal design. The authors evaluate how far DeafSpace principles are applicable only to d/Deaf people, or whether they ''reflect a set of design principles which can be embedded across a range of different environments''. The answer to this might be in the negative if one is to accept the proposition in Ann Heylighen's paper, that universal design, despite its apparent rise to pre-eminence in recent years, remains marginal to much design practice. Heylighen's paper considers this issue in the Flemish context, noting that in schools of architecture and design there is scepticism by practitioners about universal design, who perceive difficulties in designing environments that are able to accommodate every different bodily capability. Heylighen suggests that designers' belief in the impossibility of designing for everyone may be inherent to design rather than any characteristic of universal design.

Paul Jones paper provides an exploration of the designer–user interface in relation to the work of architects, or those in the vanguard of designing buildings and the spaces in between them. As such, architects are significant actors in shaping people's experiences of everyday designed environments, and their actions have import for the quality of disabled people's lives. For Jones, however, universal design is unlikely to take root unless architects are exposed to the human plurality manifest in, and embodied by, users, and as he notes, there is a need to transform architectural practice ''by opening communication and collaboration beyond sometimes impermeable professional boundaries''. In the final paper, Sarah Lewthwaite evaluates access to World Wide Web resources and considers how far they are sensitised to the needs of disabled people. For Lewthwaite, universal web standards are not necessarily sensitive to socio-cultural diversity or differences in bodily capabilities. As she notes, ''standardized universal approaches to web accessibility may lead to counter-productive outcomes for disabled people''. In assessing the interrelationships between universalising web design, and sensitising designers to corporeal complexities, Lewthwaite notes that much greater user input into the process is required, including the ''recognition and development of local accessibility and rehabilitation expertise''.

The papers, as a collective, are supportive of universal design, and see it as a progressive movement that is yet to realise its potential. The contributors provide insight into the tasks ahead, including need for much more theoretical development of what universal design is or ought to be in relation to the pursuit of design for all and not the few [also, see 25]. This includes development and deployment of concepts that enable non-reductive conceptions of design and disability to emerge, aligned to political and policy strategies that enable universal design to become a socio-political movement in its broadest sense. This is not to reject the technical, process-based, orientation that characterises much universal design research and writing, but rather to align matters of technique and technology to transformations of the social and attitudinal relations of those industrial sectors involved in the design and development of our designed environments.

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Declaration of interest

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of the paper.

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