

Disability and the importance of Design for All

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Abstract

This paper will address recent debates surrounding the nature and cause of the complex process of disablement and their relevance to understanding calls for a universally accessible physical and cultural environment. It is divided into three main sections. The first part will explore changing perceptions of disability. Attention will centre on the traditional individualistic medical approach, the socio-political understanding or 'social model of disability' and the recent 'biopsychosocial' model of disability exemplified by the World Health Organisation's International Classification of Functioning, Disability and Health. This will be followed by a discussion of the usefulness of the concept of 'universal design'. The final section will discuss the significance of these developments in light of globalisation, associate economic, political and social crises, and the struggle for a fairer and just global society.

Key words: Access, disablement, equality, policy, universal design

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Understanding Disability and the importance of Design for All

Introduction

Since the middle of the last century our understanding of the complex process of disablement has been gradually but significantly transformed from an individual medical problem to a major socio/political issue with implications for society as a whole. Led by disabled activists in the 1960s this transformation has resulted in a general recognition both at the local, national and international levels, that people with impairments whether physical, sensory or cognitive and labelled 'disabled' experience a range of environmental and social barriers that inhibit their active participation in the economic, political and cultural development of their communities. It is also widely acknowledged that this exclusion is manifest in the design and construction of physical and cultural infrastructures. These developments find expression in national anti-discrimination legislation to address discrimination against disabled people (Lawson and Gooding, 2005; Doyle, 2008), United Nations (UN) initiatives such as the *UN Convention on the Rights of Persons with Disabilities* (UN, 2009), and calls for the inclusion of the principles of 'universal design' into the production of the physical and cultural environment (Imrie, 2000).

This paper will provide a broad overview of these developments and will argue that the quest for 'access for all' is an essential element in the struggle for a fairer and just society. It is divided into three main parts. The main part of this article will explore changing perceptions of disability. Attention will centre on the traditional individualistic medical approach, the socio-political understanding or 'social model of disability' and the recent 'biopsychosocial' model of disability. This will be followed by a discussion of the debates surrounding 'universal design'. The final section will discuss the significance of these developments in light of globalisation, associate economic, political and social crises, and campaigns for a fairer and more equitable global society.

Changing views of disability

To understand changing perceptions of disability it is important to remember that there is substantial anthropological and sociological evidence that societal responses to people with impairments or 'long term health' conditions varies across time, culture and location (Hanks and Hanks, 1948; Ingstad, 2001; Ingstad and Whyte, 1995; Lemert, 1951; Miles, 1995; 2001). Yet within western cultures there has been a

consistent cultural bias against people with impairments since at least the ancient world of Greece and Rome (Barnes, 1997; Garland, 2010; Stiker, 1999; Ryan and Thomas, 1987).

There is also general agreement that the economic and social upheavals accompanying the ascendance of industrial capitalism and associate ideologies: liberal utilitarianism and the medicalisation of social deviance in the late 18th and 19th centuries, led to the institutionalisation of discriminatory policies and practices. These included the systematic removal of disabled people from the community into segregated institutions of one form or another and the creation of an economic, political and cultural infrastructure geared almost exclusively to the needs of a population assumed to be devoid of impairment.

Since the atrocities of the 'Second World War' however, there has been a general 'softening' of attitudes in policy circles in wealthy states such as Britain, Europe and the United States of America (USA). This was the result of a moral obligation felt by politicians and the general public toward the large numbers of civilians and military personnel injured during the war, and a substantial growth in the numbers of disabled and elderly people due to increasing affluence and medical advances in the post war years. There followed an expansion of community-based services provided by state and voluntary agencies, the politicisation of disability by disabled people and their organisations, and calls for clarity in definitions of disability by policy makers, analysts and researchers within and across nations states (Barnes, 1991; Borsay, 2005; Finkelstein, 1980; Oliver, 1990, 1996, 2009).

The individual medical model of disability

The first attempt to provide a universally accredited definition of disablement was produced by the *World Health Organisation* (WHO). In order to provide consistency and minimise confusion internationally the WHO commissioned a team of researchers at Manchester University, England, to expand on the WHO's *International Classification of Disease* (WHO, 1976) to cover long term or 'chronic illnesses'. The result: *The International Classification of Impairments, Disability and Handicap* (ICIDH), was published in 1980. Drawing heavily on previous definitions of disability from around the world, notably the USA and UK, it uses a threefold typology of 'impairment', 'disability' and 'handicap'. Thus:

- *Impairment*: any loss or abnormality of psychological, physiological or anatomical structure or function.
- *Disability*: any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being.
- *Handicap*: a disadvantage for a given individual, resulting from an impairment or a disability that limits or prevents the fulfilment of a role that is normal (depending on age, sex, social and cultural factors) for that individual (WHO, 1980; 27-9).

Advocates maintain that the ICDH represents a major departure from previous classifications as the concept 'handicap' has been extended to account for socio-economic disadvantage or 'economic self sufficiency' and therefore represents a 'socio medical model of disability' (Bury, 1996).

Internationally however the ICDH has not been very successful at identifying who is and who is not disabled. It is based on a particularly narrow set of western values and assumptions of 'normality'. Davis (1995) maintains that the word 'normal' only entered the English language around 1840. This was when the pressures of industrialisation were forcing governments to define, classify and control populations (Oliver and Barnes, 1998). But perceptions of 'normality' change over time and place even within and across western cultures. Indeed, to define someone as 'not normal' implies a value judgement on that person's social worth. This is most obvious with the application of labels such as 'mental illness' and 'mental handicap'.

Most importantly orthodox medical definitions such as the ICDH affirm that impairment is the principal cause of disability and/or handicap. This assertion reinforces the view that the humans are flexible and adaptable while physical and social environments are not. This flies in the face of reality since historically humans have always shaped the environment to suit their needs rather than the other way round. It also downplays the role of legislation and policy reforms to address the various economic and social disadvantages experienced by people with impairments and labelled 'disabled'.

The disabled person is expected to make the best of their diminished circumstances and focus on individual adjustment and coping strategies with appropriate professional direction (Finkelstein, 1991). Hence they

become objects to be treated, changed, improved and made 'normal' (Oliver and Barnes 1998). Whilst medical and rehabilitative interventions may be appropriate to treat disease and illness, it is increasingly apparent that they are less so for disability (French and Swain, 2008).

Further, the ICIDH implies that impairment, disability and handicap are essentially static states. Apart from the fact that this is clearly inaccurate, it creates artificial divisions between people with and without impairments where there should not and need not be any. Such a situation is especially ludicrous considering the range of conditions included in the WHO scheme. In terms of impairment, besides a whole host of illnesses and diseases, conditions such as 'baldness', 'pregnancy' and 'homosexuality' are listed. With reference to 'disability' items such as 'failure to get to work on time' or lack of interest in local or national events' are included. These so-called conditions might easily be questions of choice or environment rather than of organic or intellectual pathology. Yet the ICIDH 'has a classification for every feature of human physicality' (Shakespeare 1994: 104). It is hardly surprising then that internationally interpretations of both impairment and disability vary considerably. Such considerations weaken, if not undermine altogether, the reliability of historical and international comparisons (Eadie and Loeb, 2006).

As a consequence of these concerns disabled activists and their organizations across the world became increasingly vocal in their dismissal of individual medical approaches during the 1960s and 70s; see for example Hunt (1966), De Jong (1979), Driedger (1989), Nordqvist (1972) Oliver and Campbell (1996), Shapiro (1993), Tateiwa (2010). Reflecting on their experiences of discrimination, disabled people focused on the organisation and structures of society rather than individual functional limitations or differences (Oliver, 1983; Zola, 1983).

The social model of disability

The most radical challenge to official definitions of disablement came from a British organisation formed in 1974: the *Union of the Physically Impaired Against Segregation* (UPIAS). Drawing on personal experience and sociological insights, although none were trained sociologists, they redefined disability as 'social oppression' similar to that encountered by women, ethnic minorities, lesbians and gay men. In contrast to previous definitions which cited impairment as the main cause of disabled people's disadvantage they produced a socio-political

definition that made the crucial distinction between the biological: impairment, and the social: disability. Hence 'Impairment' denotes 'Lacking part or all of a limb, or having a defective limb or mechanism of the body', but 'disability' denotes:

'the disadvantage of restriction of activity caused by a contemporary social organisation which takes no or little account of people who have physical impairments and thus excludes them from participation in the mainstream of social activities' (UPIAS, 1976: 14).

Subsequently the restriction to 'physical impairments' was dropped to incorporate *all* impairments – physical, sensory and cognitive. This is because some conditions both congenital and acquired can affect all bodily functions, Cerebral Palsy and Multiple Sclerosis are two examples, and in a disablist society all impairments whatever their cause, have, to a greater or lesser degree, negative physical and psychological implications (Reeve, 2006). Also impairment specific labels may have relevance when accessing appropriate medical and support needs, but they are usually imposed rather than chosen and therefore socially and politically divisive (Oliver and Barnes, 1998).

Thereafter the UPIAS definition was adopted and adapted by national and international organisations controlled and run by disabled people including *Disabled People's International* (DPI) an international body for national organisations controlled and run by disabled people themselves. DPI's first world congress was held in Singapore in 1982 and attracted 400 delegates from around the world. They agreed on a common programme: the empowerment of disabled people through collective political action (DPI, 1982). For DPI, the prerequisite for change lies in the promotion of grass roots organisations and the development of public awareness of disability issues. Its slogan, 'Nothing about us without us' (Charlton, 1998), has been embraced by disabled people's organisations around the world.

A major influence on disability activism in the UK and elsewhere was the American *Independent Living Movement* (ILM). The ILM emerged partly from within the campus culture of American universities and partly from repeated efforts by American disability-activists swelled by the growing numbers of disabled Vietnam War veterans, to influence US disability legislation. In the 1960s, some American universities had introduced various self-help programmes to enable students with 'severe' physical impairments to attend mainstream courses. This

prompted some disabled students to develop their own services within the community under the banner of *Centres for Independent Living* (CILs) (De Jong, 1979).

Unlike conventional services **for** disabled people CILs are self-help organisations run and controlled by disabled people. They provided a then innovative programme of services designed to empower people with impairments for a lifestyle of their own choosing within, rather than apart from, the local community. The activities of the ILM had a significant impact on activists and policy makers around the world. CIL type organisations are now evident in many countries both rich and poor (Barnes and Mercer, 2006).

The 1970s also witnessed the introduction of various legislative measures and policy initiatives to address disability issues. In Britain, the *Chronically Sick and Disabled Person's Act* became law in 1970. The Act is widely regarded as the first piece of legislation in the world to introduce policies to improve equal opportunities for disabled people in community based services, education, housing and public buildings (Topliss and Gould, 1981). Three years later the US Congress passed the 1973 *Rehabilitation Act*, which included Section 504 prohibiting discrimination against disabled people in any federally funded programme. The United Nations (UN) introduced its *Declaration on the Rights of Mentally Retarded Persons* in 1971 and the *Declaration on the Rights of Disabled Persons* in 1975. The latter states clearly that:

‘Disabled persons, whatever the origin, nature and seriousness of their handicaps and disabilities, have the same fundamental rights as their fellow-citizens of the same age, which implies first and foremost the right to enjoy a decent life, as normal and full as possible’ (UN, 1975, article 3).

The UN designated 1981 *The Year of Disabled Persons* and 1983-92 the *Decade of Disabled Persons*. Thereafter followed a series of similar initiatives: the first and second *Asian and Pacific Decade of Disabled Persons* (1993-2002 and 2003-2012), the *African Decade of Disabled Persons* (2000-2009) and the *Arab Decade of Disabled Persons* (2003 - 2012), largely as a result of persistent lobbying by disability activists and their organisations (Takamine 2006).

Inspired by growing disability activism and interest in disablement in policy circles during the 1970s, Oliver, a British disabled activist and

sociology lecturer, coined the phrase 'social model of disability' in 1981. For Oliver the social model:

'involves nothing more or less fundamental than a switch away from focusing on the physical limitations of particular individuals to the way the physical and social environment impose limitations upon certain categories of people' (Oliver, 1981: 28).

It is therefore an aid to understanding which entails the adoption of the following principles. First, a social model perspective does not deny the importance or value of appropriate individually based interventions, whether be medical, re/habilitative, educational or employment based. Instead, it draws attention to their limitations in terms of furthering disabled people's empowerment. Second, it is an attempt to shift attention away from the functional limitations of individuals onto the problems caused by disabling environments, barriers and cultures. In short, the social model of disability is a tool with which to provide insights into the disabling tendencies of contemporary society in order to generate policies and practices to facilitate their eradication.

A notable example was developed by the UK's *Derbyshire Centre for Integrated Living* (DCIL) in 1985. In a paper inspired by a 'social barriers model of disability', Davis describes how DCIL implemented a comprehensive 'operational framework' for service support based on seven needs and priorities formulated by disabled people. These include: information, peer counseling and support, accessible housing, technical aids and equipment, personal assistance, accessible transport and access to the built environment (Davis, 1990: 7). Social model thinking was also instrumental to the development of *Disability Equality Training* (DET) courses devised and presented by disabled people. Aimed at professionals and practitioners these courses focus on environmental and social barriers to generate possible solutions (Gillespie-Sells, and Campbell, 1991). This is in contrast to *Disability Awareness Training* presented by non-disabled professionals that tend to reaffirm disability as an individual problem with the use of simulation exercises (French, 1996).

Although the social model has been criticised by both academics and some disabled people for its emphasis on environmental and social structures and neglect of impairment related concerns (Shakespeare and Watson, 2001; Shakespeare, 2006; Tremain, 2002), it has had considerable influence in the UK and beyond. The British Government formally adopted a social model definition of disability in 2005 (PMSU,

2005) and subsequently most disability state and voluntary organisations have now adopted this approach (Oliver and Barnes, 2006; Shakespeare, 2006). Social model thinking is also evident in policy statements and documents at the international level. In 1993, the UN produced the *Standard Rules on the Equalisation of Opportunity for People with Disabilities*. This document outlines a radical programme for governments to follow in identifying and securing equality for disabled people (UN, 2003/4). The European Union sanctioned the social model of disability in its policy *Action Plan* of 2003 (Commission of the European Community, 2003: 4).

A social model played a key role in the *Rethinking Care from Disabled People's Perspectives* sponsored by the WHO's *Disability and Rehabilitation Team*. This was a two-year project and conference supported by the Norwegian Government that involved professionals, disabled people, and their families from all over the world (WHO, 2001a). The UN's *Convention on the Rights of Persons with Disabilities* and its *Optional Protocol* were adopted in December 2006. Negotiated over eight sessions of an Ad Hoc Committee of the General Assembly including representatives of disability organisations it marks the first human rights treaty of the 21st century. With 50 articles, the Convention is the most comprehensive document yet produced on the rights of disabled people (UN Enable, 2009). Furthermore, the WHO's recent *International Classification of Functioning Disability and Health* (ICF) to replace the much maligned *ICIDH* also claims to incorporate social model insights into its construction (WHO, 2001b, 2005).

The biopsychosocial model of disability

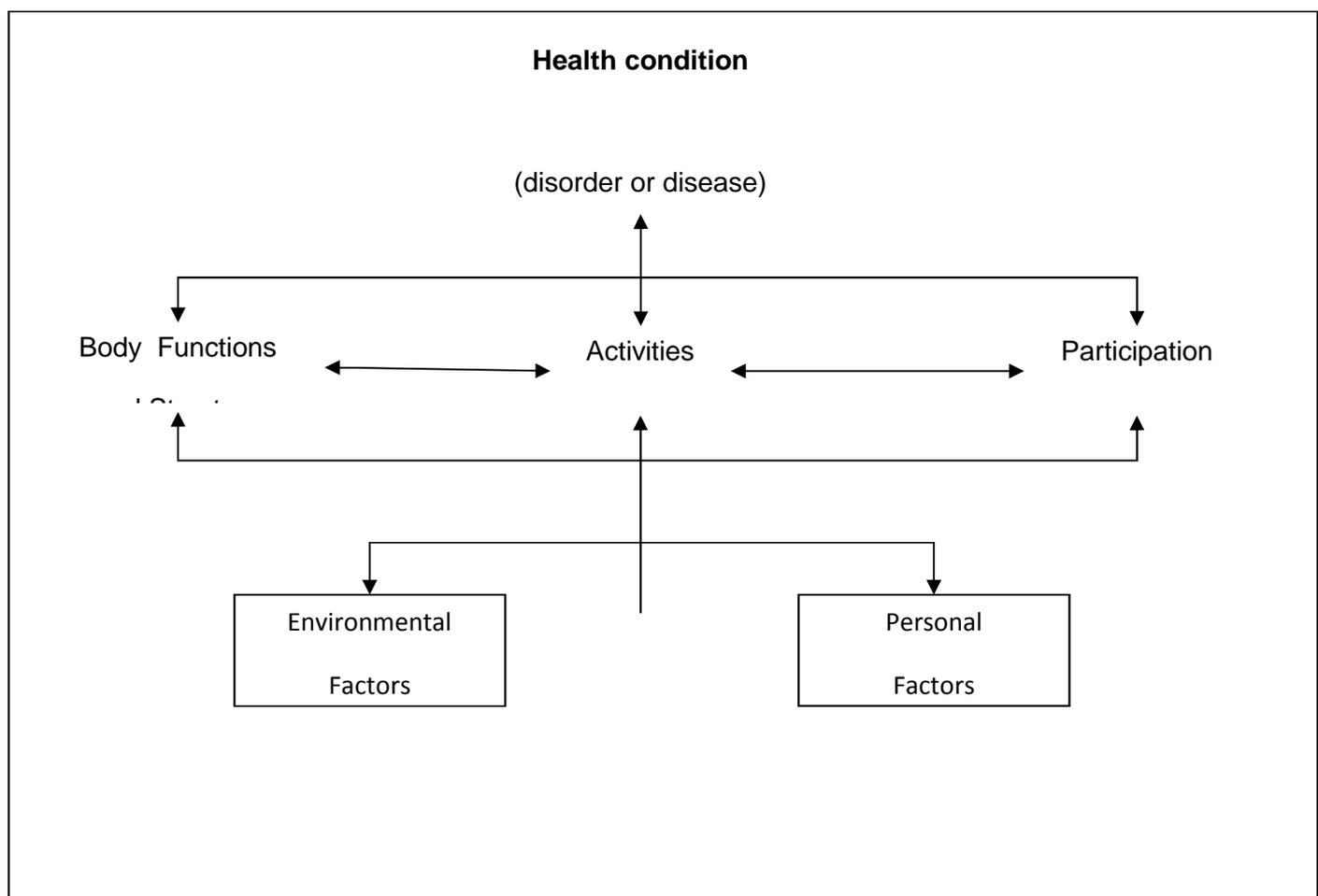
Criticisms of the *ICIDH* on both conceptual and practical grounds, by disability organisations, researchers and some policy makers, resulted in the production of the ICF. After protracted discussions during the 1990s the ICF, or the *ICIDH2* as it was originally known, was endorsed by WHO member states in 2001. Its development reaffirms the western scientific medical approach as the basis for classifying, measuring and treating 'biophysiological' conditions. Under pressure from disabled people's organisations however, they acknowledged that this approach ignores the role of environmental factors in the disablement process, but maintained that a social model approach was not 'amenable to empirical research and validation' (Bickenbach et al., 1999: 1178).

This resulted in a 'synthesis' of the medical and social models into a 'biopsychosocial model'. Thus the ICF promised a universally

acceptable analysis based on ‘a unified and standard language and framework for the description of health and health-related states’ (WHO, 2001b: 3). It comprises ‘components of health’ rather than disease classifications with the aim of establishing ‘a coherent view of different perspectives of health from a biological, individual and social perspective’ (p. 20).

As in its predecessor the ICF identifies three levels of human functioning. It distinguishes (see Figure below): body functions and structures: *impairments*, both ‘physical’ and ‘mental’; *activities*, *participation*, and *contextual factors*, which comprise ‘environmental’ and ‘personal’ factors. The coding scheme allows either positive (facilitating) or negative (barriers) outcomes, thus generating a large number of potential categories for data classification.

Interaction between the components of ICF



Source: WHO (2001b, p. 18)

Activity is defined as the execution of a task, based on a clinical assessment in a standardised environment, while *participation* covers a more 'social' aspect equated with capacity and actual performance 'in real life situations'.

The distinction between 'individual' versus 'social' perspectives reflects in many ways the *ICIDH* formulation. This raises questions about competing interpretations by users such as disabled people and professionals, as well within and across societies. Extra qualifiers of 'capacity' and 'performance' differentiate between an individual's ability to undertake a task or action, with or without 'assistive devices or personal assistance' (WHO, 2001b: 15).

The contextual (environmental and personal) factors refer to the 'complete background of an individual's life and living'. Personal factors include home, workplace and school and social factors relate to formal and informal social structures and services: transportation systems, built environment, government policies and ideologies. How far these indicators act as barriers or facilitators is based on user's reports. But different theoretical and methodological perspectives influence the choice of coding options of key dimensions such as 'support and relationships' (pp. 187-88), and attitudes that 'influence behaviour and social life at all levels' (p. 190).

Further the range of 'personal factors' enumerated in the ICF indicates the scale of the task facing researchers and policy makers:

gender, race, age, other health conditions, fitness, lifestyle, habits, upbringing, coping styles, social background, education, profession, past and current experience (past life events and concurrent events), overall behaviour pattern and character style, individual psychological assets and other characteristics, all or any of which may play a role in disability at any level. (WHO, 2001b, p.17)

Such variables do lend themselves to quantitative analysis as advocated in the ICF. Yet the exclusion of such factors undermines the broad-based ambitions of the ICF.

Further, despite changes in terminology, the ICF retains similarities with the *ICIDH*. The link of impairment with a 'significant variation from the statistical norm' (WHO, 2001b: 221). As indicated earlier 'normality' is a contentious concept. The ICF employs a much broader definition of

disability that includes bodily limitations or impairment and social participation more generally. Disability is therefore the outcome of the: 'complex relationship between an individual's health condition and personal factors, and the external factors that represent the circumstances in which the individual lives' (WHO, 2001b: 17).

But while the ICF reifies social model insights that impairment and disablement varies across societal contexts, it ignores interaction between activities and participation, environmental and personal factors. The emphasis throughout is on a 'scientific' approach firmly grounded in western concepts and theories (Finkelstein, 1998; Pfeiffer, 2000; Baylies, 2002). This assumes that its concepts and measures are 'transculturally and linguistically applicable' (Bickenbach et al., 1999: 1185). As indicated above there is ample evidence that assumptions about a 'normal' health condition vary within and across different cultures. Significantly, the ICF is promoted as 'an essential tool for 'identifying and measuring' the effectiveness of rehabilitation services (Üstün et al., 2003: 567), rather than of wider social exclusion.

Yet despite its continued promotion by the WHO, UN and organisations such as the *World Bank* (WHO, 2011) there are growing doubts about its usefulness in terms of policy development:

'So, how do we answer questions about who is disabled or the prevalence of disability in a country or region? As a multi-domain, multi-dimensional, interactive and continuous phenomenon (as it is characterised in the ICF), we must specify which impairment domains qualify, to which degree of severity. Different prevalence rates flow from different decisions. If we are interested in any impairment domain, to any degree of severity, then prevalence is roughly universal - *a conclusion of no use to policy makers whatsoever*. if we restrict our scope to specific domains and severity levels, then our prevalence levels will differ accordingly. *But these decisions cannot be made conceptually or scientifically, they are political. The scientific approach in a word, does not solve the problem the policy analyst needs to solve'* (Bickenbach 2009: 120).

Despite these concerns, in common with the social model the ICF draws attention to the impact that the physical and cultural environment has on disablement. Hence contemporary infrastructures are now viewed by disabled people and their organisations as a visible example of societal neglect of disability issues, and the result of architects and

designers 'complete denial of bodily diversity and difference' (Imrie, 2000: 200). The following section focuses on one proposed solution to this problem: universal design.

The universal design debate

The growing emphasis on an inclusive approach to make the internal and external features of the physical and cultural environment accessible to disabled people has resulted in the elevation of debates about the importance of accessibility and generation of accessibility and universal design (Imrie, 1996). But in order to avoid what Welsh (1995: 2) refers to as 'potent symbols of seperateness' that stigmatise particular sections of the community in discussions about accessibility and promote innovative solutions, attention has centred on the concept of *universal design*.

The phrase 'universal design' was coined by Mace (1998) to refer to: 'The design of products and environments to be usable by all people, to the greatest extent possible, without the need for adaptation, specialist design' (Centre for Universal Design, 2011: unpagged). It has also been defined as a movement that approaches the design of the environment, products and communications with the widest range of users in mind (Gossett et al., 2009). This design for all approach is widely linked to discourses of social inclusion and human diversity. The general aim is to improve the physical and social environment and therefore reduce the need for 'special' provision and 'assistive technologies' (Steinfeld, 2006: 1). Therefore design processes address how products, communication systems, buildings, public utilities, amenities and spaces can be produced that are both functional for the greatest number of users and aesthetically acceptable (Welsh, 1995).

Advocates of universal design acknowledge that poorly designed products and environments are discriminatory and disable large sections of the population at various stages in the life course. People with impairments and older people are particularly disadvantaged. For example, Wylde et al, (1994) suggested that as many as nine out of ten people are likely to experience 'architectural discrimination' (Hanson, undated: 10) at some stage in their lifetime. Universally designed products and environments are based on the following seven principles:

- *Equitable use*: The design is useful and marketable to people with diverse abilities.

- *Flexible in use*: The design accommodates a wide range of individual preferences and abilities.
- *Simple and Intuitive*: Use of the design is easy to understand, regardless of the user's experience, knowledge, language skills, or current concentration level.
- *Perceptible Information*: The design communicates necessary information effectively to the user, regardless of their sensory abilities
- *Tolerance for Error*: The design reduces hazards and adverse consequences of accidents..
- *Low Physical Effort*: The design allows efficient usage with minimum effort.
- *Size and Space for Approach and Use*: Appropriate space is provided to enable comfortable and effective use for anyone regardless of physical and sensory ability.

Adapted from: Centre for Universal Design, 2011. .

Universally design artefacts, products and infrastructures must therefore be barrier free and accessible to all regardless of age, impairment, gender, ethnicity and sexuality. By acknowledging the diversity of the human condition universal design promotes the creation of physical and cultural environments that enable everyone to carry out their daily activities in comfort and safety without undue hindrance and inconvenience. A commonly cited example is a universally designed building with ramps, lifts and automatic doors that will not only be easily accessible for wheelchair users but also for people with baby carriages, shopping trolleys and luggage (Lepofsky and Graham, 2009). Therefore universally designed products and environments must go beyond the minimum requirements of particular user groups but seek to identify 'how a politically mandated and socially desirable value can be embodied by the design disciplines' (Welsh, 1995: 262).

Inevitably however the emergence of universal design has generated considerable debate amongst academics and practitioners. Critics argue that the definition and principles of universal design are too general and lack clarity. The generality and lack of bench marking in the definition and principles of universal design are said to be too broad and contradictory. *Equitable in Use* is a social justice goal whilst *Flexibility in Use* is a design goal and the remaining principles focus on performance. For Crews and Zavotka (2006) too much emphasis is given to physical functioning. Concerns have also been raised about issues such as cost, participation outcomes and social change. All of

which have been linked to the failure to embrace a more 'authoritative definition of disablement' such as the ICF (Steinfeld, 2006: 8).

The lack of bench marking in the principles of universal design has also been cited as a major problem. Notwithstanding that the thinking underpinning the principles are general and therefore may be useful for product design for items such as mobile 'phones and information technology, they are less so though for other areas and items. These include architecture, graphic design and urban planning'. Indeed other guidelines have been produced with which to address these issues, but as yet no guidance has emerged on how to make these compatible. Other concerns revolve around the lack of benchmarking, measurement and examples of best practice against which universally designed items and outcomes might be judged (Steinfeld, 2006: 3).

Moreover, most critics argue that the thinking underpinning the concept of universal design overlooks the problems associated with widespread acceptability due to questions of compatibility and implementation. Steinfeld (2006) for example notes that the notion of universal design implies that there is a single universally acceptable solution to all design problems. Such an assertion is both 'utopian and simplistic'. It is also unachievable due to ethnic and cultural divisions within and across nation states as well as the diverse needs of different impairment specific groups (Gossett et al., 2009; Shakespeare, 2006; Steinfeld, 2006).

Changes to the mainstream environment that address the access needs of one section of the disabled population may pose problems for others. Equally important is the assertion that 'different people with the same impairment may require different accommodations because everyone experiences their own impairment differently' (Shakespeare, 2006: 46). In terms of compatibility, whilst bright lighting may be a suitable accommodation for people with certain visual impairments, it can pose significant problems for people with epilepsy or seizure disorders (Gossett et al., 2009: 445). Indeed, the widespread acceptability of universally designed products and environments may prove to be an elusive ideal no matter how thoughtful designers and architects attach to their designs.

Nevertheless the debates that have emerged since the inception of the universal design concept have certainly raised the bar in discussions about barrier removal and the systematic exclusion of disabled people from the mainstream of economic and social activity. But as indicated

earlier the primary keys to independent living for disabled people are peer support and personal assistance. In other words access for all is only possible with appropriate human involvement.

Discussion

Since the middle of the last century our understanding of disability has gradually shifted away from assumptions about the functional limitations of particular individuals and groups towards the way societies are organised. Whilst individual impairment and long term illness is undoubtedly an important factor in the disablement process, attention is increasingly turning toward physical and cultural infrastructures as a cause of both impairment and disability.

Estimates suggest that only around two to three per cent of impairments are present at birth. Most disabling conditions are due to a variety of social causes including poverty, pollution, accident, violence and war, and acquired at various stages in the life course. It is also the case that the more technically and socially advanced societies become the more impairment and disability they create. Due to several factors such as relative affluence, medical advances and comprehensive welfare systems, people in wealthy states live longer. The incidence of impairment increases significantly with age (Priestley, 2003). Indeed, global estimates suggest that the incidence of impairments in all societies is increasing and that as many as one billion people, 15 percent of the world's population, are disabled (WHO, 2011).

As indicated earlier the physical and cultural environment is a key element in the disablement process. In recognition of this fact most governments especially in wealthy states have formulated and introduced legislation and regulations which on paper at least aim to address this problem. In the UK for instance, the 1995 *Disability Discrimination Act* (DDA) introduced a legislative requirement that 'reasonable adjustments' be taken to remove the physical barriers facing disabled people, including new development plans. But what constitutes a 'reasonable adjustment' remains a contentious issue and ten years later less than 20 per cent of public buildings in London were rated as mobility-accessible, and 80 per cent of pubs, clubs and restaurants and other leisure venues rated as less than satisfactory (DRC, 2005). Other shortfalls included the lack of accessible toilets, ranging from only 10 per cent in restaurants to 55 per cent of cinemas (Scope, 2004).

A similar unsatisfactory situation exists for Britain's housing stock (Hemingway, 2011) and transport systems (Jolly, Priestley and Matthews, 2006). Since 2004, the implementation of the DDA physical access provisions and revised building regulations increased the pressure to improve access, particularly for leisure and entertainment venues. Even so, implementation is uneven, and a fully accessible physical environment remains a long-term goal (Barnes and Mercer, 2010: 118).

Research across Europe (Prideaux, 2006), Australia and New Zealand (Gleeson, 2001) paint a similar picture. Not only have there been a consistent failure in these countries to implement access regulations to prevent 'the production of inaccessible urban environments' (Gleeson, 2001: 256), but also 'organised irresponsibility' regarding enforcement strategies and the introduction of 'get our clauses' in official regulations (Imrie, 1996). The situation is equally dire in poorer nations of the world. One disabled commentator reports that structural inaccessibility: 'lack of ramps, curb cuts, elevators' for example, is endemic throughout so called 'developing' countries (Charlton, 1998: 106).

It is notable here that Article 9 of the UN's *Convention on the Rights of Persons with Disability* states:

'To enable persons with disabilities to live independently and participate fully in all aspects of life, States Parties shall take appropriate measures to ensure persons with disabilities access on an equal basis with others, to the physical environment, to transportation, to information and communications, including information and communication technologies and systems, and systems and to other facilities and services open or provided to the public both in urban and rural areas' (UN Enable, undated and unpagged).

The Convention is designed in an international law context and sets out the duty of nation states to protect human rights. It is said to be legally binding on any country that ratifies it. At the time of writing it has been signed by 149 countries and ratified by 101 states (UN. Enable, Undated).

Whether the Convention will be more successful than previous legislative attempts within and across nation states to address environmental barriers is as yet unknown. What is clear however is that the economic, political and cultural implications of disablement both

nationally and internationally can no longer be ignored. The interdependence of individuals, groups, populations and nation states is now increasingly evident due to the quickening pace of globalisation, and the succession of economic and political crises that have dogged the world economy since the 1970s. At the same time the world faces unprecedented challenges due to growing populations, rising inequality and the unfettered exploitation of finite and diminishing environmental resources (Harvey, 2010).. Consequently the struggle for a fairer, just and sustainable world system is increasingly urgent. Clearly a major component of this endeavour is the development and production of barrier free infrastructures, artefacts and cultures at the local, national and international levels. It is a struggle that must involve everyone, but especially those involved in the funding, planning, design, development and production of physical and cultural environments, if a global society accessible for fit for all is to be a realistic and achievable goal.

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