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Models of Disability and Human Rights: Informing the Improvement of Built Environment Accessibility for People with Disability at Neighborhood Scale?

Mary Ann Jackson [1,2]

1   School of Architecture and Built Environment, Deakin University, Geelong 3220, Australia;
     jmary@deakin.edu.au
2   Visionary Design Development Pty Ltd., North Melbourne 3051, Australia; majarch@vdd.com.au;
     Tel.: +61-409-404-941

Abstract: In the 21st century, even with the advent of the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD), the existing built environment still fails the neighborhood accessibility needs of people with disability. People with disabilities' human right to the neighborhood is, at face value, enshrined in legislation and 'much' built environment accessibility legislation is in place. But, built environment accessibility practice has been, and continues to be, shaped by a hidden discourse based on theoretical underpinnings little understood by built environment practitioners. Similarly, built environment practitioners have little understanding of either the diversity of the human condition or the accessibility needs of people with disability. In Australia, the operationalization of built environment accessibility rights is, via opaque legislation, not necessarily reflective of the lived experience of people with disability, and weak in terms of built environment spatial coverage. Empirically, little is known about the extent of built environment inaccessibility, particularly neighborhood inaccessibility. Therefore, the question explored in this paper is: How might an understanding of models of disability and human rights inform the improvement of built environment accessibility, for people with disability, at a neighborhood scale? Literature related to disability and human rights theory, built environment accessibility legislation primarily using Australia as an example, and built environment accessibility assessment is drawn together. This paper argues that built environment practitioners must recognize the disabling potency of current built environment practice, that built environment practitioners need to engage directly with people with disability to improve understanding of accessibility needs, and that improved measure, at neighborhood scale, of the extent of existing built environment inaccessibility is required.

Keywords: models of disability; human rights; people with disability; built environment; accessibility; legislation; assessment; neighborhood

1. Introduction

Worldwide, a decade after the adoption of the United Nations Convention on the Rights of Persons with Disabilities (UN 2006), the existing built environment encompassing infrastructure, public buildings, commercial buildings and private dwellings still fails to meet the accessibility needs of people with disability. 'Neighborhood' is a location of participation notoriously hard to define, but one that has received attention as a key spatial and social construct and focus of policy and practice across a variety of fields including planning, community development, and health (Jenks and Demsey 2007; Bevan and Croucher 2011; Oliver et al. 2015). Many, if not most, neighborhood activities, ranging from the essential (residing somewhere, attending school) to the ordinary (grocery shopping) to the discretionary (recreation), still require the negotiation of discontinuous travel chains and/or are

completely impeded by the presence of barriers (Deane and The National People with Disabilities and Carer Council 2009; Jackson and Green 2012; Pineda and Dard 2016; Stephens et al. 2017). Empirical evidence of the frequency and severity of impediments, the causes contributing to impediment, and clear insight into prioritizing rectification of impediments is still, however, sorely lacking (Green 2011). Furthermore, reflective of outmoded models of disability, the meaningful input of people with disability is still rarely sought (Oliver 1987, 1992; Imrie and Wells 1993; DRC 2004; Boys 2017). Why, at almost the end of the second decade of the 21st century, are the human rights of people with disability still being ignored?

Through more than 30 years of transdisciplinary built environment experience, I have come to the realization that built environment practice and academia around built environment practice does not have a history of understanding disability, or human rights legislation pertaining to built environment accessibility, or people with disabilities' lived experience of neighborhood accessibility. Furthermore, these three arenas appear to be rather siloed and the 'neighborhood', as a mediator between individual experience and community inclusion, is rarely considered. Imrie (2000) notes that '[w]ritings about disabled people are usually aspatial or lack geographical frames of reference' and believes that 'geographical and/or spatial terms of reference are important in understanding disabled people's lives.' (p. 5).In an attempt to draw together literature related to disability and human rights theory, built environment accessibility legislation primarily using Australia as an example, and built environment accessibility assessment, this paper is somewhat exploratory in nature. Focusing largely on literature from, and the built environment in the global north, the paper primarily seeks to illuminate the Australian context. Spanning across all sectors, the terms 'built environment practice' and 'built environment practitioner' are intentionally broader than conventional disciplinary descriptors of architecture/architect, planning/planner, and the like, and signify all those involved in legislating, shaping, funding, forming, making, and researching the built environment. 'People with disability' encompasses the diversity of experience of people with diverse impairments given all are users of the same/single built environment.

How might an understanding of models of disability and human rights inform improving built environment accessibility, for people with disability, at neighborhood scale? The following article sets out to probe this question. Firstly, salient Models of Disability, considered from a built environment perspective, are briefly presented. The topic of Human Rights in the context of the built environment, concentrating mainly on built environment accessibility legislation relevant to Australia, is then briefly covered. Common themes of inaccessibility, as experienced by people with disability, are tabled and various methods of assessing neighborhood accessibility are noted and/or outlined. Interactions between models of disability, built environment accessibility legislation, and current methods of neighborhood-scale accessibility assessment are then discussed. In conclusion, I propose a way forward to improving the accessibility of the existing built environment for people with disability at neighborhood scale.

2. Models of Disability: A Built Environment Perspective

Within and across the disability knowledge domain much research from many nuanced, and contested, perspectives has been, and continues to be, undertaken, much of it interdisciplinary. Built environment practitioners, however, have scant acquaintance with such endeavors (Imrie 2015; Boys 2017). Therefore this paper seeks to bring disability concepts, via the central notions of established disability models, into the view of mainstream, built environment practitioners; it does not purport to add to disability studies scholarship per se. Disability models considered to be the most salient to this paper are the well-established charity, medical, social, relational, and diversity models, and the currently developing human rights model of disability. Relationships between the selected models and the existing built environment are explored in greater detail in the following paragraphs.

2.1. Charity Model of Disability

　　　Terminology such as moral model, charity model, and religious model, in relation to disability signposts an approach to disability characterized by notions of caretaking and protection, both in terms of the vulnerable 'other' needing protection and care and, later, the need to protect the economic and social order by controlling, via segregation, 'deviant members' of society (Braddock and Parish 2001, p. 31). Construction of institutions was a core response to this viewpoint. In Australia, UK, and USA, asylums for the 'mentally ill, retardates, degenerates, and defectives'[1] were a common landmark of the late 1800s and early 1900s; workhouses have a long history in the UK (Higginbotham 2018). Often large, imposing, containing cavernous dormitories, and sited within extensive grounds away from town centers, such structures are a clear-built manifestation of the institutional nature of the charity model of disability. Usually less architecturally imposing than workhouses and asylums but not necessarily better located in terms of nearby community services, segregated schools for 'the blind and the deaf' were also common. In Melbourne, Australia, full closure of 'Kew Asylum/Kew Cottages' only occurred in 2008, a decade ago, and Victoria's last disability institution with 76 remaining residents, Colanda House in Colac in western regional Victoria, was to be closed in 2014; the facility was constructed in 1976.Institutional care for elderly persons in facilities such as workhouses, infirmaries, almshouses, homes for the aged and infirm, and 'homes' was common in the UK and USA until the middle of the 20th century (Peace 2003; Fisher 1953). Similarly, within Australia, institutional care for elderly persons was provided by a combination of charitable benevolence and government intervention, within recognizably institutional physical environments until approximately post-WW2. Due to changes in government policy and subsidies, rapid growth in (institution-like)nursing homes occurred in the 1962–1972 period in Australia, with hostels for older persons subsequently also appearing (Le Guen 1993).

　　　Historically therefore significant proportions of the population, being not only 'the disabled' but also 'the mentally disturbed', 'the elderly', and 'defective' children, have not been publicly visible and have been congregated into institutional care settings at a distance, both geographically and culturally, from wider society (Wolfensberger 1969; Barnes and Mercer 2003). It could be argued that a crucial consequence of the historically pervasive ideology of institutionalization is that much of the general built environment is inaccessible for people with disability. In the UK, USA, and Australia people with disability, particularly people with intellectual disability, are not now generally institutionalized as a first resort. However, a common consequence of de-institutionalization is the inability to access other built environments, at the neighborhood scale, particularly, due to the legacy of poor urban-scale design. Imrie (1998) observed that "western cities are characterized by a design apartheid where building form and design are inscribed with the values of an 'able-bodied' society" (p. 129)—a somewhat inevitable consequence of the charity model's invisible segregation of people with disability.

2.2. Medical Model of Disability

　　　The medical model of disability is essentially a normative one, based on classifying levels of deviance or deficiency compared to a normative state (Nankervis 2006). Central tenets of the medical model of disability are that firstly, a person's 'impairment' can be diagnosed, cured, or at least rehabilitated, by modern medicine and/or medical technology, and secondly, such interventions will be provided by all-knowing professionals (Oliver 1998; Scotch 2000; Pfeiffer 2001). Espousing the view that medicine should treat and/or correct impairment for the social good, the thoughts and approaches of influential American sociologist Talcott Parsons (1951) contributed to the continued preeminence of

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[1]　Indicative of the terminology used at the time (Wolfensberger 1969).

the medical model of disability (Pfeiffer 2001). Other, similar descriptors such as: personal tragedy model, individual model, and rehabilitation model, are often used interchangeably.

Inherently influenced by the medical model of disability, institutionalization reached its peak in the late 1960s in most western countries (Stainton [1998] 2017). Although imposing Victorian-era structures may have fallen out of favour at that time, resulting in less immediately identifiable built forms, sheltered workshops and dormitory-style living arrangements were still common. Much existing public transport infrastructure has also been built under the legacy of the charity and medical models of disability and is, therefore, inaccessible for many people with disability. In Australia, much of Melbourne's public transport infrastructure for trains and trams dates from the early 20th century, or before. Melbourne's above-ground train system went through major rebuilding in the 1950s and 1960s but, clearly, accessibility was not much considered. Melbourne's underground city loop train system was constructed in the 1970s with many accessibility shortcomings. Current tram stop upgrading work, in Melbourne, highlights the lack of thought originally given to people with disabilities' accessibility needs.

In 2015, people with disability comprized 18.3% of the Australian population (ABS 2017). Although the oft-repeated statistic of 'approximately 20%' is intended to communicate the substantial number of people with disability in the Australian population, it tends to imply a static 20% minority–majority 80% people without disability. In reality, membership of either statistical group is always in flux with all (100%) people likely to experience mobility and/or other built environment use difficulties at some stage during the course of life (Zola 1993). Compounding such problems is that reporting of disability demographics is often categorized under a 'primary' disability such as intellectual disability, autism, vision-impairment, hearing-impairment, wheelchair user, or user of another mobility aid such as walker, crutches, or walking stick, and as arrived at through precisely categorized medical diagnosis (Nankervis 2006). Therefore, medical model ideology tends to lead to the (unacknowledged) belief among built environment practitioners that built environment accessibility needs of people with disability will be resolved by individual provision of personalized, medical intervention and/or assistive technology. In reality, many people with disability have multiple impairments affecting built environment use in differing ways and significant swathes of the built environment are inaccessible at neighborhood scale.

Engendered by people with disabilities' low public profile, conformist societal attitudes, design precedents, weak legislation, and poor understanding of built environment accessibility needs of people with disability, a significant extent of the existing built environment, whether historical or 'modernist', has been designed within a paradigm of a charity-medical model of disability, albeit unconsciously.

2.3. Social Model of Disability

Significant social and rights movements of the 1960s around race, gender, sexuality, and disability led to profound questioning of the imbalances of power, knowledge, and rights of the status quo. This, however, tended to play out differently in different parts of the world. During this period in the UK of 'new ways of thinking', Finkelstein and Hunt (British researchers, disability activists, and major theorists) developed their social relational theory concluding that social exclusion of people with disability was an outcome 'of the materialist landscape of the industrial era' rendering them economically unviable (Hunt 1966; Finkelstein 1993; Finkelstein 2001; West 2012, p. 76). Viewed through such a lens, design of factories and workplaces, schools, public transport systems, and infrastructure was heavily influenced by the attitudes of the designers' clientele. It is likely, however, that built environment form-makers were not conscious of the effect on accessibility outcomes.

Moving beyond the previous, narrow, medical view of disability to a new, wider, societal view Oliver (1983, 1998, 2013), a British academic and disability activist, developed the social model of disability in the early 1980s. Essentially, in moving disablement from an internal, individual pathology location to a primarily, external, societal environment, the social model critiques and challenges the medical model approach (Oliver 1983; Scotch 2000; Pfeiffer 2001). The Social Model explains that

disability arises from barriers within 'an oppressive and discriminating society' rather than impairment per se (Soder 2009). This shifts the onus of response away from the individual (to be cured) to society (to dismantle barriers that construct disability).

New ways of thinking also extended to built form. 'Post-modernist' architecture started to emerge in the 1960s.However the Australian version, popular in the 1980s, was rarely manifested in more than facade form and decoration, with little attention paid to post-modernism's underlying hallmark concerns of diversity and discrimination. Therefore, throughout this time in Australia in terms of accessibility for people with disability, urban layouts and building design remained largely untouched by the concerns of either post-modern social theorists or proponents of the social model of disability, thereby remaining as inaccessible as ever. The Social Model of Disability, in recognizing that the built environment is a disabling instrument in itself, is of great significance to built environment practice. Invariably, however, built environment practitioners in Australia are, still unaware of such concerns. This lack of understanding can be partly explained from a regulatory perspective. Although various state-based Building Regulations may have previously contained some provision for 'disabled access' the Australian *Disability Discrimination Act* (DDA, (Australian Government 1992)) was not enacted until 1992, the *Building Code of Australia* (BCA, (ABCB 2016)) was not fully adopted nation-wide until 1998, and the (Australian) *Disability (Access to Premises—Buildings) Standards 2010* (Premises Standards, (Australian Government 2010)) was not in force until 2011!

Oliver (2013) lamented thirty years on, that even though the social model had taken on a life of its own somewhat over-reaching his original intentions, 'still talking' rather than observable progress appeared to be the main outcome. Furthermore, in an environment of funding cuts to major services due to post-global financial crisis austerity measures and associated disability movement fragmentation, Oliver (2013) acknowledges that new disability models are warranted. The influence of broader social theories of: feminism, post-modernism, and post-structuralism, on the development of other disability models is, therefore, salient (West 2012).

2.4. Relational Model of Disability

In the late 1960s Nirje, a Swedish social theorist, formulated the principles of normalization emphasizing strong support of deinstitutionalization, recognition of the diversity of the human condition, and belief that people with disability and 'normal' (ordinary) life, including access to the built environment, are not mutually exclusive. This work represents part of an emerging grand idea of social inclusion for people with disability in the community and within the neighborhood (Nirje [1969] 1994). Following on in this continuum of Nordic interest in people–environment interaction, a new disability model developed around the end of 1990s–early2000s, and has subsequently been recognized as the (Nordic) Relational Model of Disability (Goodley 2011).

As identified by UK-based Critical Disability Studies scholar Goodley (2011), restated by Lid (2013) in Norway, and Carling-Jenkins (2014) in Australia, the Nordic Relational Model of Disability revolves around three main tenets being that disability is a person-environment mismatch, situational (contextual), and relative. In work underpinned by Relational Model of Disability theory Lid (2016) posits that accessibility for wheelchair users and people with vision impairment in urban areas requires a sound understanding of person-environment interaction.

The preceding discussion is of interest because it provides at least a partial explanation of why the Nordic-Scandinavian countries are considered, in many ways, to be at the vanguard of contemporary built environment accessibility policy. Norway, for instance, is to be 'universally designed by 2025' (Norwegian Ministry of Children, Equality and Social Inclusion (NMCEandSI 2016)). However, although those involved in disability studies in Australia, Carling-Jenkins for example, are somewhat cognizant of the relational model of disability, reference to this does not appear to exist in Australian built environment literature. In a further vindication of Imrie's concerns (Imrie 2015) of built environment practitioner indifference to disability, none of the people mentioned in this subsection are from a built environment disciplinary background.

2.5. Diversity Model of Disability

In the USA, Shriner and Scotch, professors specializing in social work, and sociology and political economy respectively, were also very concerned about the under-representation of people with disability in employment, reduced educational attainment, and the discriminatory nature of the existing built environment. Scotch and Shriner (1997) postulate that the *Americans with Disabilities Act* of 1990 (ADA, (USDoJ CRD 2017)) with its concomitant *Title II Regulations*, Title *III Regulations*, and *ADA Standards for Accessible Design*, has arisen out of the previously dominant minority group model of disability (a political strategy which relies on advocating for justice for a disadvantaged minority, (Bickenbach et al. 1999)) and as such is a deficient approach. Instead they proposed and explored, 'Disability as Human Variation', an alternative model intended to focus attention on how society's systems respond to variation introduced by disability (Scotch and Shriner 1997). Under this model, accessibility in the built environment, for example, is not solely achieved by antidiscrimination regulation requiring a 'universal' solution; the diversity of disability must be acknowledged (Scotch and Shriner 1997). Shriner and Scotch (2001) further question the socio-political definition of disability, in which (all) barriers faced by people with disability are (built-environment) imposed and therefore removable, feeling that this common underlying ideology of disability rights activists and independent living movements insufficiently recognizes that 'impairment' does have a bearing on accessibility outcomes.

Seeking to overcome the false dichotomy of ability/disability, Bickenbach et al. (1999) pursue the concept of universalism, proposing:

> While the 'social' model is now universally accepted, it is argued that universalism as a model for theory development, research and advocacy serves disabled persons more effectively than a civil rights or 'minority group' approach. (p. 1173)

Bickenbach et al. (1999) explain that universalism reflects the view that 'disablement is a universal human phenomenon' rather than a minority one (p. 1179). A universal approach to disability shifts the focus from 'special responses for special needs' (where such needs are competing with those of the general population, Zola 1989 in (Bickenbach et al. 1999) to an approach that 'accepts difference and widens the range of normal' along an ability–disability continuum that can be applied to all humanity (Bickenbach et al. 1999, p. 1182).

Spanish researchers Palacio and Romanach (2006) also sought to overcome the false dichotomy of ability/disability in the development, via the fields of bioethics and human rights, of the diversity model of disability. Palacio and Romanach (2006) intentionally use the all-encompassing term 'diversity', adding a somewhat postmodern outlook. The similarities and differences between the diversity model and universalism cannot be debated here, but both offer new ways of thinking to built environment practitioners. Nonetheless, Hamraie (2016) whose interdisciplinary scholarship bridges critical disability, race, feminist studies, architectural history, and science and technology studies argues that a 'normate template' notion continues to underpin present-day built environment theory and practice concluding that [built environment practitioners need to] 'foreground the political, cultural, and social value of [diverse] disability embodiments.' (p. 304).

2.6. Human Rights Model of Disability

As with previous disability models explored in this paper, the Human rights model of disability did not spontaneously appear, but rather, evolved within a continuum of rights-based approach thinking (Quinn et al. 2002; Degener 2016). In line with the USA's standing as a significant site for rights activism, social responses to impairment were heavily predisposed towards Human Rights discourses and resultant frameworks as proposed by the United Nations (Quinn et al. 2002). An early signpost towards the human rights model of disability is the UN Universal Declaration of Human Rights adopted, in 1948, shortly after the end of WW2 (Berghs et al. 2016). Declarations of rights often arise in response to established power imbalances constraining the ability of marginalized

and/or minority groups to fully participate in all aspects of society and are hallmarked by written articulation, at high legislative level, of who does and doesn't have rights and what those rights are and are not. Content is usually informed by contemporaneous sociopolitical movements, such as civil rights, women's rights, children's rights, and, of course, disability rights (Berghs et al. 2016). In the built environment space, in response to the worldwide phenomenon of emphasis on rights and deinstitutionalization, disability research and activism work in the USA investigated 'needs based assessments' (characteristic of welfare policy) and (fairer) 'rights based assessments' in relation to independent living; building on such work the independent living movement emerged in Berkeley, California, in the early 1970s (Berghs et al. 2016).

The 1980s were pivotal in disability discourse and activism, globally. Along with the emergence of Oliver's social model of disability in the early 1980s, 1981 was the UN-decreed International Year of Disabled Persons, 1983–1992 was the UN Decade of Disabled Persons, Universal Design (UD) arrived in 1984, and the UN Convention of Rights of the Child encompassing children with disability was adopted in 1989. Continuing on into the 1990s saw an expanded commitment to disability antidiscrimination legislation, for example, the ADA (USA 1990), the Australian DDA (Australian Government 1992), and the UK *Disability Discrimination Act 1995* (now the Equality Act 2010, legislation.gov.uk). Notwithstanding such positive events, Hahn (2000), a pioneer in rights-based approaches, concluded a decade after the introduction of the ADA that it 'has not fulfilled many of the hopes of its proponents' (p. 192). Nonetheless, a (human) rights model of disability is evolving and continuing to gain traction, particularly in light of the UNCRPD, adopted by the UN in 2006. In discussing the development towards the UNCRPD, Bruce (2014) restates the views of prominent Disability Studies writers (e.g., Zola, Oliver, and Hahn) in explicitly problematizing inaccessible built environments for people with disability.

Increasingly, critiques of both the built environment and legislation regarding it, have been framed from discrimination and rights viewpoints. Schindler (2015) acknowledges that the ADA has achieved progress for people with disability but highlights the power of the built environment over people's lives and its discriminatory ability, through design and planning mechanisms, to segregate thereby reducing opportunity and autonomy. Theresia Degener (2016) characterizes the inaccessibility of the built environment as a human rights problem, suggesting that Disability Studies has moved beyond the debate of medical versus social models of disability and is now in a new era of human rights model of disability as epitomized by the UNCRPD.

It is perhaps the case that the human rights model of disability is in danger of becoming narrowly defined as being the UNCRPD. There is no doubt that in its various explicit and implicit references, the UNCRPD effectively requires all the built environment to be accessible for people with disability of all ages. Disability advocates believe that the UNCRPD's rights-based sociopolitical approach to barrier removal will engender both nondiscrimination and social inclusion (Berghs et al. 2016). On the other hand, weaknesses identified by various analyses include potential for no enforcement generally, toothlessness at nation-state level, ill-defined linkages with other legislative boundary-crossing bodies, and misinterpretation leading to ill-considered modified environments (Berghs et al. 2016). Perhaps the greatest danger, however, is that in advocating for individuals' rights its use will be restricted to personal protection and safeguard, rather than being the go-to tool to precipitate enabling environments (Berghs et al. 2016). This would mark an unwelcome return to disability being considered an individualized problem, suggesting that 'a continued role for the more established social model of disability' is defensible (Berghs et al. 2016).

2.7. Disability Models: A Conundrum for Built Environment Practice?

As highlighted in the preceding pages, built environment accessibility outcomes are critically affected by the way society positions and views disability. Built environment accessibility practice has been, and continues to be, shaped by a hidden discourse. Unless exposed, this will remain

uncritiqued. It is a hope that the above analysis of disability models, provides some insights from a built environment perspective.

The various models are reflective of their different historical periods. The particular value of the social model to built environment practice is the emphasis on the way environment, including the built environment, constructs disability. Disability is not a preexisting, independent, condition; the nature and experience of disability is directly linked to the built environment, among other factors. More recent models emphasize diversity of human experience—this also has implications for built environment accessibility practice. The UNCRPD specifically draws attention to the wide-ranging extent of the built environment, for example, housing, public buildings, transport, and social/cultural/recreational locations. Notions of 'community' and 'inclusion' that focus attention on geographical areas, or neighborhoods, are embedded in the UNCRPD and the way people are supported to interact with their environment is considered crucial. Therefore, the human rights model of disability, via the UNCRPD, potentially offers very strong direction and breadth for built environment accessibility legislation and practice.

From a built environment perspective, the preceding discussion raises somewhat of a conundrum, particularly in relation to built environment practice in Australia. Worldwide, including Australia, enforcement of existing built environment accessibility legislation is widely cited as a problem (NZHRC 2012; USDoJ CRD 2017; AFDO 2015; DARU 2016; NMCEandSI 2016; Sawadrsi 2011; Ariffin 2016; ACPF 2014; IDRM 2004). Nonetheless, in my experience there is a perception within critical/disability studies that a human rights model of disability, with associated UNCRPD-derived 'prescriptive' built environment accessibility legislation, would achieve more tangible results more quickly. Unfortunately, my experience indicates that built environment accessibility is already being treated, thoughtlessly, as a regulatory exercise by most built environment practitioners. As highlighted in the following Section 3 of this paper, much of the Australian built environment is not directly subject to built environment regulatory controls. Therefore, I believe there is real danger that a solely rights-based, prescriptive, approach, even if comprehensive, would merely further entrench the current tick-box mentality, with unimproved outcomes at the neighborhood scale.

3. Human Rights Legislation and the Built Environment: An Australian Viewpoint

At face value, people with disabilities' right to inclusion in the neighborhood is enshrined in 'disability' legislation. However, we know from disabled peoples organizations (DPOs), disability advocates, human rights commissions' complaints lists, media reports, and people with disability themselves, that significant difficulty in exercising such rights is still being experienced. Is this due to inadequacies in legislation? Built environment accessibility legislation is indeed somewhat opaque, as illustrated by the following paragraphs.

3.1. Accessibility Legislation

3.1.1. At International Level: UNCRPD

Within disability policy and legislation in Australia, and elsewhere, it is acknowledged that the UNCRPD is the umbrella human rights instrument addressing disability (Commonwealth of Australia 2018). Beyond the specific directives contained in Article 9 Accessibility various other Articles, (such as Article 19 Living independently and being included in the community, Article 20 Personal mobility, Article 24 Education, Article 27 Work and employment, Article 28 Adequate standard of living and social protection, Article 29 Participation in political and public life, and Article 30Participation in cultural life, recreation, leisure and sport) effectively require all the built environment to be accessible for people with disability (UN 2006). The UNCRPD also mandates the inclusion of people with disability, in communicating views about built environment experience (UN 2006). Therefore, from an 'Accessibility in the Built Environment' perspective, the content of the UNCRPD, is ground breaking.

However, there are several layers of procedure between a UN member state signing the convention and the convention being directly enforceable through domestic legislation within that country.

Although only a miniscule number of UN member states have no involvement in the convention, there are significant differences in official commitment levels. Only approximately half of the world's countries have fully committed in signing and ratifying both the convention and its accompanying optional protocol. Amongst other potential benefits for people with disability, only full commitment, that is, signing and ratifying both the convention and the optional protocol, allows (individual) claimants to take a case directly to the UN. Notably, the USA's commitment had not (mid-2017) extended beyond signing (UN 2017). A contributing factor to USA's non-UNCRPD ratification is a governmental view that the USA's ADA, with its attendant standards, is sufficiently *prescriptive* to achieve an accessible built environment (Hamraie 2012). This governmental view is, however, contested as evidenced by numerous media reports and advocacy organizations' electronic communication platforms. ²

Australia has signed and ratified both the Convention and the Optional Protocol. Australia's ratification expresses acceptance of the inherent obligations (ALRC 2014). However, unless Australia passes appropriate domestic law the UNCRPD is not directly enforceable within the Australian judicial system (McSherry 2014). Effectively, in the Australian built environment context, it is *policy*, not enacted legislation. Furthermore, most built environment practitioners within Australia are neither familiar with UNCRPD content nor aware of its significance in relation to built environment accessibility practice.

3.1.2. Built Environment Accessibility Legislation: At National Level

In response to difficulties experienced by returned servicemen, laws specifically referencing the welfare, and rights, of people with disability started gaining momentum after WW2, particularly in the USA (The Guardian 2017). As previously highlighted, the 1960s–1990s period saw significantly strengthened legal provisions concerning rights throughout the world. Nonetheless, prior to the adoption of the UNCRPD, '[a]ccording to the Inter-Parliamentary Union, only one third of countries have antidiscrimination and other disability-specific laws.'(UN 2008). Over a decade later however, most countries have various laws and multiple official government policies in place proscribing discrimination, upholding rights, and enhancing wellbeing of people with disability; the content of same is, however, somewhat variable (DREDF 2017). The USA legislative package of ADA, ADA Regulations, and integral *ADA Standards for Accessible Design* (the latter running to hundreds of pages), is rights-based. *ADA Standards for Accessible Design* are also 'prescriptive', that is, there is much detailed information about what *must* be done within the built environment to satisfy the stipulated accessibility requirements.

Australia's DDA is a complaints-based document. In a sense, it is also 'performance-based' in that detailed prescriptive requirements are not contained within the act, rather, it is necessary to satisfy the 'objects' of the act. These are contained in one paragraph consisting of three brief, explanatory parts. Only part of the first part appears to be of direct relevance to the built environment:

(a)   to eliminate, as far as possible, discrimination against persons on the ground of disability in the areas of:

    (i)   work, accommodation, education, access to premises, clubs and sport; and

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²   For example: http://usicd.org/index.cfm/crpd, https://www.hrw.org/news/2013/07/26/us-ratify-disability-rights-treaty, http://www.catholicethics.com/forum-submissions/the-us-fails-to-ratify-the-un-convention-on-the-rights-of-persons-with-disabilities, https://www.ahead.org/CRPD/Myths%20and%20Facts, https://www.huffingtonpost.com/2013/10/08/ada-violations_n_4064270.html, https://dredf.org/2017/10/04/ada-under-attack-tell-house-representatives-oppose-h-r-620/, https://dredf.org/web-log/2017/06/23/no-roll-backs-civil-rights-past-plaintiff-opposing-h-r-620-ada-notification-act/.

    (ii)   the provision of goods, facilities, services and land; and... (Australian Government 1992, p. 1)

However, notwithstanding its central 'do not discriminate' intention, implementation detail is somewhat lacking. Therefore, built environment practitioners do not understand the significance of DDA requirements which are thus commonly ignored.

To address perceived gaps and to further Australia's DDA implementation outcomes, subordinate *legislation* via a suite of 'Disability Standards', being the: *Disability Standards for Accessible Public Transport 2002* ((Australian Government 2002), Transport Standards), *Disability Standards for Education 2005* ((Commonwealth of Australia 2006), Education Standards), and the Premises Standards (2010), has subsequently been enacted. Each of these standards has limitations in terms of directing built environment practice effectively. The first half, approximately, of the Premises Standards covers 'legalities', for example: Preliminaries, Scope of Standards, Commission Exemptions, and Review, before moving on to (technical) Deemed-to-satisfy provisions. Premises Standards technical content generally aligns with that of the BCA in numbering, presentation and detail. However all three Disability Standards, and the BCA, have complex inclusions and exclusions.

In terms of built environment accessibility, oversight of transport *premises* has now been transferred to the Premises Standards. Potential shortcomings of this legislative move include: nullifying compliance target date timetabling, the relationship between compliance-timetabled rolling stock and compliance un-timetabled built infrastructure impacting people with disabilities' built environment accessibility, and the restricting of public sector scrutiny by effectively putting transport premises into the (individual) buildings regulatory system. In addition, the Premises Standards do not apply to most private dwelling stock nor to public realm-pedestrian environment infrastructure. Each of the Disability Standards features largely inaccessible language. The Education Standards are written in 'policy-speak' and hence ignored by built environment practitioners whereas the Transport Standards and Premises Standards are written in built environment regulatory code language incomprehensible to those without sufficient background technical knowledge and access to all referenced documents; the latter are not freely available.

The Premises Standards and the BCA, in the context of built environment accessibility, are commonly referred to as being harmonized. The BCA is a national-level, *performance-based*, document and has been since 1996 (ABCB 2017). Nonetheless, the on-going inclusion of technical-looking deemed-to-satisfy provisions has contributed to a continued perception of prescription. It is a common misconception that the technical detail presented in the deemed-to-satisfy provisions, in both the premises standards and the BCA, is prescriptive. This is not the case. Ultimately, the legislated requirement is to satisfy the performance requirements, compliance with Deemed-to-satisfy provisions is merely an undemanding way to acceptably demonstrate so-called satisfaction. However, if one looks closely one will discover that significant portions of buildings, for example, fit-out, fixtures, and fittings are not directly covered in deemed-to-satisfy provisions which mainly focus on wheelchair-accessible paths of travel and toilets.

Although the Premises Standards and BCA are commonly referred to as being harmonized, some BCA Performance Requirements are omitted from the Premises Standards and the 'legalities' part of the Premises Standards is not included in the BCA at all. What has been 'harmonized' is, predominantly, the replication of deemed-to-satisfy provisions. However, Deemed-to-satisfy provisions Parts D4 Braille and tactile signs and D5 Accessible water entry/exit for swimming pools in the Premises Standards are appended to Part D3 in the BCA, confoundingly called Specifications (deemed-to-satisfy), and numbered differently. The BCA's: Part D3 Access for people with a disability, Part E3 Lift installations, and Part F2.4 Accessible sanitary facilities, all being deemed-to-satisfy provisions, do not make any direct, or inferred reference, to either the *Disability Discrimination Act*, or the Disability Standards.

Bourne out by my extensive consulting and provision of professional education experience, architects and building designers tend to rely on the BCA as their only built environment accessibility regulatory source. This is rather problematic on three counts. Firstly, referenced documents such

as Australian Standards[3] are published by private sector entity SAI Global and are not freely available. Secondly, effectively, the BCA does not cover the accessibility of either public realm infrastructure, including the pedestrian environment, or most private dwellings. This is particularly concerning as, in terms of spatial coverage, those categories of built form comprise most of the built environment. The 'public realm', being, roads and other transport infrastructure, the pedestrian environment, parks and the like, *not buildings*, is thus not subject to building permit regulation. Building accessibility legislation requirements are also therefore not directly triggered. Current built environment accessibility legislation in Australia being not directly applicable to private dwellings is reflective of conventional content which can be traced back to the USA's ANSI (1961) *A117.1 Accessible and Usable Buildings and Facilities* first issued in 1961. Detached and semi-detached housing comprise approximately 87% of Australia's private dwellings (Heath 2017). Thirdly, if the fine print is closely read, it can be discerned that the deemed-to-satisfy provisions of the BCA (and the Premises Standards) allow plenty of opportunity for suboptimal outcomes and/or 'avoidance'. Such avoidance does not obviate the DDA complaint process but complainants' capacity to complain is often limited by meagre resources.

4. Assessing Neighborhood Accessibility

An essential component of this tripartite paper is the lived experience of people with disability, at the neighborhood scale. Illustrated in Table 1: Accessing the neighborhood? an extensive survey, undertaken as part of my current PhD studies, has established that across 'anglophone' countries, Europe, Asia-Pacific, Africa, and Latin America, many people with disability find their everyday environments a daily, overwhelming struggle. Within the literature common themes are very obvious: social inclusion stymied by inability to navigate broken travel chains; built environment areas of greatest concern being housing, public realm pedestrian environment (at the community/neighborhood scale), and public transport; lack of enforcement of existing legislation identified as a very significant problem; and inconsistent and/or misinterpretation of existing legislation also identified as problematic.

Table 1. Accessing the neighborhood?

Themes	Social exclusion • Community/neighborhood inclusion stymied by broken travel chains Inequitable built environment • Unsuitable housing • Deficient public realm pedestrian environment • Unusable public transport infrastructure Legislation inadequacies • Legislation not enforced • Legislation misinterpreted
Regions	'Anglophone' countries, Europe, Asia Pacific, Africa, Latin America
Countries	UK, New Zealand, Canada, USA, Australia; France, Turkey, Slovenia, Poland, Germany, Kosovo, Sweden, Norway; Malaysia, Thailand, Japan, China, India, Singapore, Pacific Islands; Ethiopia, Sierra Leone, Uganda, Zambia, Egypt, Ghana; Mexico, Belize, Honduras, Suriname, Brazil, Chile
References	(HoC WEC 2017; NZHRC 2012; Stephens et al. 2017; USDoJ CRD 2017; AFDO 2015; Rains and Butland 2012; DARU 2016; Sander et al. 2005; Baris and Uslu 2009; Zajac 2013; Basha 2015; NMCEandSI 2016; Sawadrsi 2011; Sarma 2016; Ariffin 2016; Wee et al. 2015; ACPF 2014; Tudzi et al. 2017; IDRM 2004; Pereira Martins et al. 2016; Rotarou and Sakellariou 2017)

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3   There is much confusion around the difference between Australian Standards and Disability Standards. In the built environment accessibility context, the former are, effectively, merely guidelines and the latter are indeed legislation.

Given the breadth of the existing built environment inaccessibility problem as articulated above, what processes are in place for improving same? As a starting point, what tools are available to empirically assess the accessibility for people with disability, at neighborhood scale, of the existing built environment?

Generally positioned within the 'expert' domain, access auditing refers to assessment by experts for compliance against accessibility legislation. In the prescriptive USA system this involves working through the very lengthy ADA and associated detailed standards. Although still available, the *ADA Best Practices Tool Kit for State and Local Governments* does not appear to have been updated since 2008 (USDoJ CRD 2008). In 2016, the (USA) Institute for Human Centered Design, through its New England ADA Center, produced *ADA Checklist for Existing Facilities* (Existing Facilities) along with various other recreational facilities checklists including, for example, amusement rides, various water-based recreational activities, and shooting facilities. The publicly available Existing Facilities checklist, based on the USA *2010 ADA Standards for Accessible Design*, is technical-compliance based requiring equipment, expert knowledge, many Yes/No boxes checked, accumulated photographic record dealt with, and possible solutions noted, after which it is expected that the possible solutions will be costed, a plan developed, changes made, and progress annually monitored (IHCD 2016). Typologically, more and more of the USA's built environment is being covered by ADA checklists. Nonetheless, although ongoing development of publicly available Access Auditing tools is occurring via new, and updated, ADA checklists for example, such assessment tools are invariably compliance-based without input from people with disability. Data collected remains as discrete, islands of information. Although checklist content may include cost estimates, compliance-achieving rectification recommendations are the intended main output. Neither interrogating the legislation itself nor identifying user preference prioritization is contemplated. The process, therefore, is invariably reduced to a financial transaction, not an upholding of rights.

In Australia's performance-based system 'compliance' is interpreted, by experts, against various deemed-to-satisfy provisions often referencing Australian Standards but not covering off all aspects of building structure, form, or fit out. Also in Australia, similarly to the USA, esoterically comprehensive spreadsheets of information are produced and input from people with lived experience of disability is generally not sought. Prioritization of rectifications is arrived at through combinations of expert opinion and costing differentials. In both the USA and Australian legislative systems, public and commercial building accessibility is the customary target. Lack of specific accessibility legislation directly applicable to private housing, public space, and pedestrian environments makes 'compliance' auditing of such areas, in Australia, a flawed undertaking. In Australia the Access Institute, a private sector registered training organization, runs various 'accessibility in the built environment' programs at diploma, certificate iv, and short course level. Short courses offered vary in duration from two–three hours to one–two days and access audit templates for attendees' future use are issued (Access Institute 2017). Nonetheless, courses are applicable to discrete parts of the built environment in isolation only and offered on a commercial transaction basis. There is no expectation that data obtained from subsequent assessments will be used for any wider, community oriented, benefit. No publicly available, peer-reviewed, standardized checklists are in widespread use amongst the Australian Access Consulting community. The lack of attention paid to developing, and maintaining, publicly available access auditing tools is, perhaps in Australia at least, a reflection of the now privatized nature of built environment 'compliance' consulting services, resulting in private-practice-developed methods being treated as commercial-in-confidence. Operationalization of (expert) Access Auditing invariably involves tick-boxing a list of pre-determined items corresponding to defined regulations. Underpinning theoretical concepts, for example adherence to any particular disability model or acknowledgement of human rights requirements, are not communicated–the list is the list.

Beyond the type of access auditing described above, there are a range of other measurement approaches. In relation to fitness and recreation environments an assessment tool, *Accessibility Instruments Measuring Fitness and Recreation Environments* (AIMFREE), was first used in assessing

35 health clubs and fitness facilities in a US national field trial (Rimmer et al. 2005). A major driver of AIMFREE development was the identification of highly inaccessible, neighborhood-scale, public realm pedestrian environments for people with disability, and in this context, 'health clubs may present a viable alternative for participating in physical activity' (Rimmer et al. 2005, p. 2022). Several further studies, in either full or modified form, have been undertaken in Canada, USA, Kuwait, and Singapore (Arbour-Nicitopoulos and Ginis 2011; Calder and Mulligan 2014; Rimmer et al. 2017). Albeit with limitations, principally being length of 422 questions and some problematic psychometric properties, AIMFREE methodology is considered satisfactory, particularly regarding content validity and development of appropriate scoring calculations (Calder and Mulligan 2014). Various AIMFREE Manuals in both professional and consumer versions can be ordered from National Center on Health, Physical Activity and Disability (NCHPAD); purchase price and content unknown (NCHPAD 2017). AIMFREE is specifically applicable to sport/fitness and recreation centers, a rather esoteric component of the built environment, typologically, locationally, and spatially.

Lau et al. (2015) proposed the *Building Inclusiveness Assessment Score* (BIAS) for assessing the disability inclusiveness of university buildings. Originally intended to be conveyed as one final score, the development and testing process conducted in Hong Kong indicated that making the Physical Disability Inclusion Subscore (PDIS) and the Visual Impairment Inclusion Subscore (VIIS) explicit was warranted (Lau et al. 2015). Assessment items included in BIAS are intentionally derived from international accessible design guidelines, built environment accessibility legislation and standards, and universal design principles; 'subjective' input from people with disability is not sought (Lau et al. 2015). Such attitudes are indicative of, firstly, the tension between compliance-based built environment assessment and sidelined disability studies lived experience and, secondly, the naive belief that standards and guidelines are 'right', and properly reflective of people with disability accessibility needs. Several built environment accessibility assessment methodologies developed in other parts of the world, including BIAS, are referenced in literature back grounding development of the *Composite Disability Design Inclusiveness Score* (CDDIS), a method of assessing the inclusivity of university buildings in Ghana specifically (Tudzi et al. 2017). Further development of the methodologies mentioned is not apparent.

A range of other nonconventional accessibility investigation tools, designed to determine public realm accessibility for people with disability, do not appear to be in use or undergoing further development.[4] Elsewhere and across a range of, mainly, public realm environments, several research projects investigating built environment accessibility for people with disability have developed measurement methods and generated data (Kadir and Jamaludin 2012; Zajac 2013; Wee et al. 2015; Pereira Martins et al. 2016; Buhler et al. 2015; Stephens et al. 2017). Production of replicable built environment accessibility assessment tools was not, however, a defined intention. Findings arrived at using conventional accessibility/walkability tools in the interdisciplinary *Street Mobility and Network Accessibility* project indicated high accessibility/walkability potential (Mindell et al. 2017). Fine grain analysis, however, found that people with disability were disproportionately affected by poor quality pedestrian environments, particularly deficient pedestrian crossings and footpaths (Mindell et al. 2017).

In Australia, Green (2011) devised a new tool, the *Universal Mobility Index* (UMI), purporting to quantitatively measure, comparatively rate, and longitudinally track equity of access across all parts of the built environment using a participatory approach. The UMI is explicitly founded on the social model of disability and methodologically intended to function as a rights-based indicator (Green 2011). The UMI tool consists of two main components—built environment component and

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[4]   See, for example: *Access Audit Tool*, Lewis, McQuade, and Thomas, early 2000s; the oft-referenced 2009 Ankara work of Baris and Uslu; *International Transportation Accessibility Survey* (ITAS), 2010 International Conference on Mobility and Transport for Elderly and Disabled Persons; *A Methodology for Enhancing Life by Increasing Accessibility* (AMELIA-AUNT-SUE), (Evans 2010; AUNT-SUE 2010; Mackett et al. 2012); and *Rating of Accessibility and Safety* (ValeAS), (Biocca 2014).

policy environment component—the latter considers whether the opinions of people with disabilities on the built environment are meaningfully acknowledged and included (Green 2011). The built environment component requires neighborhood accessibility assessment being undertaken by people with disability themselves. Therefore, its characteristics, in underpinning theory, components, and measurement methods, are markedly different to conventional access auditing. The first pilot of the UMI was undertaken for my Masters research project in the Kensington (Victoria, Australia) neighborhood in 2011 with results published in 2012 (Jackson and Green 2012).

Therefore, although various work is being done in various specialized directions it appears there is not any overall neighborhood scale built environment accessibility assessment tool in widespread use. Other than the UMI, current and past built environment accessibility assessment tools and methods commonly lack explicit theoretical regard to disability models and/or human rights requirements. Furthermore, excluding the concept of access auditing, tools and/or assessment methods presented above are virtually unknown in built environment practice. Many have been developed from a non-built environment disciplinary perspective. Given the general spatial scale of assessment this is somewhat understandable; the nuances of built environment production are, however, difficult to comprehend from a non-built environment perspective. On the other hand, reflective of the lack of understanding within the built environment knowledge domain of the lived experience of people with disability, accessibility assessment tools developed from a built environment perspective, BIAS for example, tend to be building typology specific, expert-driven, and compliance-based with, at first impression, complicated calculating processes.

5. Putting it All Together

5.1. Disability Models: Application in the Built Environment Context

Deeply entrenched ways of thinking exemplified by the charity and medical models of disability have had a profound influence on the shaping, forming, and making, of our existing built environment. While it is doubtful that most built environment practitioners in the past sat at drawing boards dreaming up ways to deliberately design-out 'the disabled', the net result of their exclusionary 'othering' actions is the same: a built environment that continues to fail the accessibility needs of many people with disability. This has occurred not just at the individual building scale but is also evident in enduring urban layouts, for example, poor pedestrian environments, deficient public transport provision, and unsatisfactory location of residential and other services. Deinstitutionalization, now considered a societal norm has, doubtless, resulted in reduced incidence of full-time institutional care. However many residents of group homes are routinely unable to access local pedestrian environments, services, and public transport; children with disability and their carers community access needs are not addressed; and the laudable ideal of ageing in place is an accessibility nightmare in many cases, both at home and within the neighborhood. Although some current urban planning and design practices such as tactical urbanism and biophilic design may be post-modernist in their participatory-ness and natural-world focus, outcomes are still informed by entrenched design-school attitudes, the result being that the accessibility needs of people with disability are still ignored.

The medical model of disability is generally accepted to lack social focus and typical disability reporting, of 'primary' impairment or medical diagnosis of 'greatest severity', does not convey the multifactorial lived, person + environment, experience of many people with disability. Therefore, in the quest to improve built environment accessibility, the social model of disability serves as a powerful wake-up call. Firstly, it shifts the focus away from the individual, but perhaps more importantly, at least in the context of built environment practice, it recognizes that the built environment is a disabling instrument in itself. The relational model of disability, being tied in with the Nordic way of life, legislation, policy, and professional proficiency also provides some pointers, particularly given Nordic/Scandinavian standing at the vanguard of built environment accessibility practice. In figuring out how to improve the accessibility of the existing built environment, at neighborhood scale, we

surely need to consider all users. But who is ALL? The false dichotomy of ability/disability is a pitfall to be avoided; the post-modernist diversity model of disability aids understanding in this regard. The human rights model of disability is a forceful reminder of the rights of people with disability.

Built environment practitioner ignorance of people with disabilities' accessibility needs is compounded by slow rates, overall, of built environment renewal. Pinnegar et al. (2008) concluded that the Australian built environment changes at a rate of only around 1.25% per year. Therefore much of the existing built environment has indeed been informed by the charity and medical models of disability. The social model of disability has now been in existence for approximately four decades, the relational, diversity, and human rights, disability models are more recent. Unfortunately though, the concept of models of disability is virtually unknown in Australian built environment circles.

5.2. Built Environment Accessibility Rights Instruments: Implementation Issues

Neighborhood inclusion for all is apparently enshrined in law via various rights declarations and national-level regulatory mechanisms, and the groundbreaking advent of the UNCRPD. However in many ways, albeit unconsciously, the ways of thinking derived from the charity and medical models of disability are still underpinning current building regulations at the within-country level. Entrenched and poorly built environment accessibility outcomes at the neighborhood scale thereby continue.

Human rights instruments vary markedly in content, format, and prescription versus performance orientation, profoundly influencing interpretation. However, those that call for more certainty, via more prescription along the lines of the standards integral to the USA's ADA, perhaps do not understand the nuances of built environment design, the wide variation in built environment existing conditions, and the particularities of project-specific challenges. It is physically impossible to write detailed prescriptive requirements covering every possible situation, and attempting to do so risks reduction to tick-box compliance devoid of understanding of the diversity of the human condition. Additionally, reducing design outcomes to a set of pre-determined, potentially outmoded, solutions risks stifling innovation, an essential component in the quest to obviate disability-related inequality of existing built environment access. On the other hand Australia's performance-based system, theoretically encouraging endless innovation, is not necessarily superior in all respects, if one's aim is to improve the existing built environment sooner rather than later.

Evidently, there are also resources imbalances at the nation-state level throughout the world. Nonetheless, living in a developed country does not automatically translate to all its citizens enjoying full access to the built environment. In Australia, if we are not mindful, our charity-medical model inaccessible built environment legacy is likely to be further entrenched. Replacement and/or renewal of the overall existing built environment and particularly of the public realm is, historically, slow. Increasing appreciation of the value of retaining existing structure, which in the context of sustainability concepts such as embodied energy and carbon and virtual water is to be encouraged, is likely to decelerate, rather than increase, 'natural' renewal.

Due to the various factors discussed in the preceding paragraphs it is likely that built environment (in)accessibility, in Australia at least and particularly within the public realm and housing, will continue to be problematic if reliance on the current legislative framework is continued in isolation. Perhaps there are other processes that can also be utilized to improve the accessibility of the built environment, at neighborhood scale, for people with disability?

5.3. Improving Neighborhood Accessibility: Measure

There is still not any overall neighborhood scale built environment accessibility assessment tool, in widespread use. In Australia, as elsewhere, within either the academy or professional practice, concerted research and development of neighborhood-scale accessibility assessment tools aimed at evaluating the lived experience of diverse people with disability has not, to date, occurred. Without such information and given the extent of the problem, it is difficult to see how a well thought-out,

rather than reactionary, program of improvement can be determined. As a first step, measurement of existing conditions is essential, particularly in the face of scarce resources (Green 2011).

6. Conclusions

The fact that the built environment is still inaccessible in the 21st century is staggering. Self-evidently, built environment practitioners are unfamiliar with contemporary accessibility expectations and fail to realize that historically entrenched ways of practice continue to construct disability. The social model of disability, compelling practitioners to confront the disabling nature of built environment practice, is fundamental to improving built environment accessibility outcomes.

Improving built environment accessibility outcomes also requires built environment practitioners to understand the accessibility needs of people with disability. People with disability are not a homogenous group. People with disability are diverse, as are all of the members of a society. There is, however, only one built environment. To ensure that our built environment is as accessible as possible for all people, built environment shapers, formers, and makers, must engage directly with people with disability—an uncommon activity, historically. Furthermore, to ensure that people with disabilities' built environment accessibility needs are not inadvertently overlooked, *a la* charity and medical models of disability, a human rights model of disability is warranted.

Globally, significant built environment accessibility rights legislation and policy frameworks already exist, for example, the groundbreaking UNCRPD, national disability discrimination acts, 'disability standards', building code accessibility requirements, and other guidelines within-country. However, in attempting to achieve built environment accessibility, existing legislation does not, nor can it, provide all the answers. Nonetheless, built environment practitioners take for granted that it does, due to lack of understanding, encountering, or interacting, with disability. Furthermore most built environment practitioners are not aware of the full content or significance of built environment accessibility legislation. People with disability experiencing major difficulties accessing the existing built environment within the neighborhood therefore continues. Areas of greatest concern are housing, the public realm's pedestrian environment, and public transport. These areas comprise the greatest spatial content of neighborhoods, and in Australia these areas are, coincidentally, the areas of the built environment with the weakest, least direct, accessibility legislation. Current codifying of built environment accessibility (human) rights via legislation within-country is opaque, risking stymieing positive outcomes flowing from the UNCRPD.

Also coincidentally, empirical data regarding the extent of the existing built environment inaccessibility problem, particularly at the neighborhood scale, is not readily available. Cogent processes of improvement are unlikely without such information. Various ways of measuring neighborhood accessibility have shown promise in the past but have not progressed. Subject to further piloting—perhaps the UMI, originally devised by Green and consciously underpinned by social model of disability and rights-based approach—might fill this gap.

Understanding disability models and acknowledging human rights can beneficially inform improvement of accessibility of built environment for people with disability at neighborhood scale. However, built environment practitioners must firstly recognize that, exemplified by the charity and medical models of disability and best explained by the social model of disability, built environment practice is a potent disabling instrument in itself. Secondly, it is essential for built environment practitioners to always engage with people with disability directly, rather than assuming tick-box compliance of codified human rights is sufficient. Thirdly, if existing built environment conditions are not well-understood, accessibility improvement progress is likely to be impeded.

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