Community Receptivity: The Ecology of Disabled Persons' Participation in the Physical, Political and Social Environments

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ABSTRACT   *The physical environment is the space in which people with a disability participate in the public sphere. The community provides a suitable unit of analysis for investigating the interaction between the physical environment and persons with a disability because it is the common space in which public participation is played out. The places, physical features, structures and objects that constitute the physical environment bear the inscription of the social, political and economic environments. The physical environment reciprocally influences the social, political and economic environments, as well as the perceptions of participants in the public sphere. Community receptivity is a concept that links the physical and social environment in relation to community readiness to support the public participation of persons with a disability. Results of a recent community-based program of research in the USA that developed and tested measures of community receptivity to people with a physical mobility limitation are reported. Implications of this research are discussed together with suggestions for future research.*

In the first decade of the 21st century social, political and technological advances have increased the potential for the public participation of disabled people in society (Bricout 2004, Cook & Burke 2002, O'Day & Goldstein 2005). The physical environment in which public participation takes place has similarly been altered by evolving social, political and technological environments in a reciprocal process of mutual influence (Schur 1998, Latour 2002, 2003). Context provides a critical grounding to the discussion of public participation, and community is the context in which public support for the integration of disabled people has the most immediate consequences for public participation (Bedini 1993, Pretty, Rapley & Bramston 2002). An ecological perspective, which emphasizes reciprocal relationships between different levels of analysis, is necessary properly to frame the interacting physical and social environments as they influence the public participation of

disabled people. A new overarching concept, namely community receptivity, locates the public participation of disabled people in an ecological perspective. A recent research project conducted in the USA to assess several aspects of community receptivity toward people with a physical mobility limitation provides findings and insights into the dynamic interplay of physical and social environments as they influence the public participation of disabled people.

Public Participation

The public participation of persons with a disability lies at the nexus of physical and social space where the narratives that define the character of society are given voice, and where the dramas of wealth and want are played out. Public participation that supports the social and psychological needs of persons with a disability has important consequences for their physical and economic well-being (Sinnema 1992, Cummins & Lau 2003). Housing, employment, health services, transportation, education, civic life, recreation and entertainment are the elements of that participation. Informal participation, such as engagement in community events, is considered a part of civic life, and thus an aspect of "public participation", although it does not involve engagement in formal community organizations, programs or services.

Physical Environment

The physical environment encompasses the natural environment (such as terrain), technological objects (such as airplanes), technological networks (such as the Internet), and artifacts (such as signs). Disabled people, like everyone else, not only move through this environment, but construct their lives in a kind of dialogue with the physical environment out of which emerges the narrative of everyday life. A theoretical framework suitable for conceptualizing the dialogue between disabled people and their physical environment is provided by science and technology studies.

Interacting Environments

Science and technology studies have linked technology, nature and society in reciprocal transactions, and reject the presumed linear causality inherent in technological determinism – according to which technology develops independently of social processes (Escobar 1994). Similarly, the assumption that social processes are immune to natural forces, or that natural forces are immutable in the face of social change are rejected in favor of lines of mutual influence (Latour 1991, Latour 2000). Technology and nature become non-human actors, distinct from, but nonetheless connected to, human actors in the shaping of society (Cambrosio 1993, Latour 1988, Latour 2000). Indeed, the very glue of society, the ties of mutual obligation that bind us together have technological, as well as social foundations: "We are held together by

loyalties but also by telephones, electricity, media, computers, trains and planes'' (Latour 1991:16). This concept of the physical environment as ''entangled'' with human action and human struggles, to use a favorite phrase of Bruno Latour, illuminates a fundamental challenge facing persons with a disability in their efforts to achieve parity in public participation with the non-disabled population. Namely, that in the hurly-burly of interacting human and non-human actors, disabled people are disadvantaged from the get-go by ancient and not so ancient prejudices about human form and function: the signs upon which they rely are undecipherable, Web-based media are not accessible, physical terrain is unnavigable, and the trains are not accommodating.

Humans remain, however, active agents in molding the technological and natural environments, albeit with constraints imposed by their place in society (i.e. status) and the nature of the network (i.e. social and institutional paths) through which they exert consciousness and volition (Bijker & Bijsterveld 2000, Latour 2003). Here again, disabled people are disadvantaged by the compounded penalties arising from their generally low social status and economic deprivation: people with disabilities constitute an economically, politically and socially marginalized minority throughout the world (Garcia 2002). This disadvantage lessens their agency vis-à-vis other groups; effectively rendering them ''minimus inter pares'' in influencing the physical environment to accommodate their needs relevant to public participation.

From the perspective of science and technology studies, humans mentally and culturally ''construct'' the purpose of technology and nature, or the ends to which they are put (Bijker 1996, Escobar 1994). This notion argues for expanding our quotidian ideas of human form and function to include both shared and idiosyncratic traits of persons with a disability, in order that the purposes to which technology and nature are put are broad enough to serve disabled people without prejudice. In other words, the normative ideals of a worthwhile human life shared by the majority (or dominant) groups are of great consequence to the negotiation with, and of the physical environment. Disability rights, whether enshrined in legal code or social convention clearly have an important role to play in leveraging the public participation of disabled people in the direction of parity.

Finally, consistent with the posited recursive relationship between human actors, technology and nature, a science and technology studies perspective implies that technologies can transcend mere means to create their own purpose. As Latour (2002) suggests, ''... morality is from the beginning inscribed in the things which, thanks to it, oblige us to oblige them.'' (p. 258). To the extent that assistive technologies on which disabled people rely are systematically different than technologies on which non-disabled people rely (for instance, a wheelchair is categorically not an office chair), and that difference is deemed negative, then the morality undergirding their use will not have the same currency as that undergirding a non-stigmatized technology. This moral imperative differential can be seen in the instance of a society mandating subsidized postal service for all its members as a ''public participation right'', but declining to make equipment

changes necessary for equal access by blind people because of a utilitarian cost–benefit analysis that stands in stark contrast to a deontological commitment to postal service for the entire polity.

Nonetheless, simple access is not a sufficient condition to ensure the benefits of public participation. Social inclusion, which requires that people with a disability actively define how, when and where they participate, makes public participation meaningful rather than compulsory engagement in normative roles and responsibilities, is also a critical factor. Findings from a recent study of the relationship between participation in civil society and health suggest that individual and collective benefits are empirically distinct; individual benefits from participation may be contingent upon baseline health status (Ziersch & Baum 2004). The quality of social networks and social exchange also need to be considered when assessing the benefits of participation for persons with a disability. Critical information for persons with disabilities is conveyed through social networks, as are important relationships promoting quality of life and public participation, whether exercised face-to-face or virtually through information and communication technologies, such as the Internet (Bricout 2003b, Guo, Bricout & Huang 2005). Social networks form the bedrock of community, the context in which public participation may most readily be intervened upon (Lahiri-Dutt 2004), and to which the discussion turns next.

Community Context

Place, in terms of spatial, temporal and social coordinates provides a critical context for bounding the discussion of the physical and social environment in which public participation is enacted. Community is the most useful designation of this place. Community refers to what is sometimes called the "ordinary community" (i.e. Pretty et al. 2002), in distinction to the community of disabled persons as studied by Ville and colleagues (Ville, Crost, Ravaud & Tetrafigap Group 2003). Communities have been the sites of disability-related interventions, most notably in the guise of community-based rehabilitation (Lysack & Kaufert 1999, Miles 1996). In the community-based rehabilitation model, rehabilitation is implemented primarily at the community level using locally available resources, which are often simple, such as primary healthcare (Eldar 2000). Developing countries have been a particular focus of community-based rehabilitation because of limited access to medical and educational opportunities (Mitchell 1999). The model aims to integrate three concentric levels of resource and policy support for community-based rehabilitation efforts: national (central government), regional (district level) and community (local level) (Mitchell 1999). The person with a disability is an active participant in the process, which includes social integration efforts, such as advocacy for self-determination rights, together with medical rehabilitation components, such as self-care training and equipment (Mitchell 1999). In other words, facilitating the public participation of disabled people is a major focus of community-based rehabilitation. Because the community-based rehabilitation model is heavily reliant upon

local resources and supports, success depends on the full participation of persons with a disability and the engagement of community members (Turmusani, Vreede & Wirz 2002). Perhaps because of the impact of local contingencies, community-based rehabilitation interventions have had an uneven record of success around the globe (Kendall, Buys & Larner 2000). Community-based programs for disabled people have good potential, but clearly require careful planning and adequate resources to achieve that potential. Communities remain, however, important loci for positively influencing the public participation of disabled people, because of their position at the confluence of individual and societal forces that shape public participation.

Communities are shaped by macro influences in the form of social policies, and micro influences in the form of family and neighborhood norms. The social dynamics of a community may reflect a microcosm of the larger society (Williams & Windebank 2000) and change at the community level can be leveraged to bring about more widespread societal change. Hence, community has the potential to serve as an accessible platform for promoting the public participation of disabled people. One of the chief sticking points about using community as a unit of analysis and of change lies in defining precisely what constitutes ''community''. Community is defined in terms of its borders, its members and government bodies; and the way in which community is conceived is of supreme importance to disable people as a socially disadvantaged group. In this the discussion turns first to conceptual issues around defining community, followed by methodological issues.

Community Concept

One of the greatest challenges facing researchers of public participation in community settings lies in defining precisely what ''community'' means; in other words, whether a clearly delineated physical, psychological, social, temporal, or cultural space or something more fluid, and not reducible to a bounded space of any kind (i.e. Brent 2004, Fryson 1999). The consequences of this confusion are not merely philosophical: the act of defining community delimits not only the elements under study (i.e. housing or psychological belonging), but also change strategies (i.e. legal appeals or peer support) and change agents (i.e. professionals or consumers). At issue is not determining the ''correct'' definition of community, but rather, to choose consciously, acknowledging the social and political consequences of one's choice.

Communities exist both as a physical place, whether defined by local convention, political boundaries or shared perceptions, and as a locus of affiliation or identification; that is, as a social aggregation to which one belongs – or does not belong (e.g. Hobfoll 1998, Homan 1999, Williams 1999).

Community Methodology

Three analytic criteria are proposed for drawing the boundaries of community in the conduct of research, based upon the extant research literature

(c.f. Brent 2004, Prezza, Amici, Roberti & Tedeschi 2001, Lev-Wiesel 2003, Williams 1999). The first of these is feasibility of assessment, which refers to the resource allocation required for adequately sampling a community. When delimiting "community", the space must not be so large as to preclude an assessment of the physical and social components. This is a flexible criterion the specifics of which will vary depending upon the resources of the investigators; be they advocates, consumers, practitioners, researchers or coalitions. Second, the space must have a recognizable identity in the minds of those live there; it must be psychologically meaningful for community "members". This criterion is best discerned through a preliminary assessment based in the feedback of local informants who are representative of the major stakeholder groups and local experts. The challenge is particularly around gauging the boundaries of psychological community. People living on the "margins" may disagree about the frontier, unless there is a major physical marker, such as a river or a major thoroughfare. Third, political jurisdiction boundaries should be considered because demographic, economic and other related data of interest may be collected at the level of the jurisdiction in question (e.g. municipality) and the corresponding government body may be needed either to sanction the research, or to provide resources for acting upon the findings.

For people with a disability, both physical and social dimensions of community have important public participation implications. It is in communities that persons with a disability conduct their lives and make their plans for the future. Precisely how the community welcomes or discourages the public participation of persons with a disability is, therefore, an issue of primary concern for interventions aimed at enhancing their role as full and equal members of society. Community readiness and support for the public participation of persons with a disability can be assessed with reference to the concept of community receptivity.

Community Receptivity

Community receptivity refers to the willingness, values and knowledge of people in the community that facilitate the participation of people with disabilities in valued activities and events, including social events, religious worship, employment, entertainment and travel outside the home. We developed our notion of community receptivity based on research and theoretical literature that has explored key components of "receptivity" in a variety of different contexts, notably: receptivity to racial and ethnic diversity (i.e. Baker 1999), community prevention-readiness regarding substance abuse (i.e. Beebe, Harrison, Sharma & Hedger (2001), religious affiliation receptivity (i.e. Bader & DeMaris 1996, Nock 1989), and cultural sensitivity in substance abuse prevention (i.e. Resincow, Soler, Braithwaite, Ahluwalia & Butler 2000).

Both the physical and social environments are embedded in the concept of community receptivity as mutually influencing dimensions. The social dimension of community receptivity constitutes the expectations, attitudes,

perceptions and intentions of community members toward disabled persons' public participation. Yet, the social dimension is not only about what community members think, it is also about their awareness and their value system; positive attitudes in the absence of knowledge, or good intentions without a value system that accords persons with a disability equal respect, may demonstrate good feelings, but will not produce receptivity. Hence, social receptivity, as one dimension of the larger community receptivity addresses the limitations of assessing attitudes alone, which constitute generalized evaluative beliefs, by considering the knowledge, values and willingness of community members.

The physical dimension of community receptivity constitutes the "disposition" of the built or natural environment and community resources toward disabled person's public participation: in other words, the degree to which the physical environment renders public participation venues and events accessible. It is important to underscore the fact that the physical dimension of community receptivity while inclusive of accessibility is not solely about accessibility; rather, it is more systemic in scope and has a symbolic aspect. Whereas accessibility standards may target individual facets of the physical environment in isolation, physical receptivity considers how related features of the physical environment either work together to promote participation or in some way cancel each other out. It is thus more synergistic and systemic than accessibility as commonly conceived. A building with individually "accessible" features may nonetheless prove to be un-navigable for an individual using a wheelchair because of the location, sequencing or spacing of accessible features. Meanwhile, the physical environment put to human use has an unavoidable symbolic aspect that must be taken into account: placing an "accessible" ramp at the rear of a commercial building alongside a loading dock or rubbish bin has very definite connotations apart from the specifications of the "accommodation".

Although the social and physical dimensions are distinct for analytical purposes they are in fact intertwined; the physical receptivity is actively shaped by the social receptivity as financial and material resources are prioritized to either enhance or impede accessibility, or in the obverse case, social receptivity changes in response to alterations in natural or constructed topographies that either promote social inclusion ideals and opportunities or stifle them. Combining separate social and physical dimensions for an aggregate picture of community receptivity is also very challenging because the relationship between dimensions is complex and it is difficult to interpret conflicting assessments when they arise.

If there is an apparent "mismatch" between the receptivity of social and physical dimensions does this mean that one dimension is leading or lagging the other, or does it mean that one or the other dimension was inadequately assessed? In the course of a recently completed research project developing and testing tools for assessing barriers to community participation for persons with mobility limitations conducted in the USA, the authors developed the conceptual framework described above, designed and field-tested measures and arrived at some tentative conclusions. At the same time,

the study results have also posed some additional intriguing methodological and theoretical questions. The study will be described following a brief discussion of the context in which the study took place: American society.

American Context

In the USA, there exists a suite of social policies at the federal level aimed at removing barriers to the public participation of persons with a disability, extending chronologically from the *Architectural Barriers Act* of 1968, which requires disability access to built environments designed, altered, constructed or leased with federal funds, to the civil rights-inspired *Americans with Disabilities Act* of 1990, which prohibits discrimination against persons with a disability across a broad range of domains including employment, access to buildings and services, transportation, communication, civic participation and insurance, to the *2001 Rehabilitation Services Administration* (RSA) administrative regulation mandating integrated (versus segregated) work settings as an approved outcome for vocational rehabilitation services.

The American model of disability rights is grounded in the "minority model" of rights that bases anti-discrimination protections in the special status of particular groups oppressed by society and societal barriers to public participation. There is a close kinship between the "minority model" of rights and the "social model" that locates the source of disability in environmental barriers and finds expression in the *Disability Discrimination Act* in the UK and the *Federal Disability Discrimination Act* in Australia.

This tack contrasts with a universal human rights approach, in which the rights of all vulnerable or oppressed people are protected. A universal approach is embodied in the protections afforded persons with disabilities in the *Canadian Charter of Rights and Freedoms* and the *Employment Equity Act*, of South Africa, in the *Constitution of the Republic of South Africa*. The World Health Organization's current framework for assessing health and disability, the *International Classification of Functioning, Health and Disability* (ICF) also promotes the equitable treatment of persons with a disability on the basis of shared human rights, rather than as population-specific minority rights (Bickenbach, Chatterjii, Bradley & Ustun 1999). Regardless of the approach, the rhetoric lags far behind the reality as persons with disabilities around the world struggle to achieve parity in public participation with the non-disabled population (Garcia 2002).

National studies conducted in the USA have documented the positive influence of the *Americans with Disabilities Act* (ADA) on barriers in both the social and physical environment to the public participation of persons with a disability (e.g. NOD/Harris 2000, Price & Gerber 2001, Unger 2002, Unger, Wehman, Yasuda, Campbell & Green 2002), although reception of the ADA has not been without resistance and backlash (e.g. Burkhauser 2001, Scheid 1999), or reservations about the costliness of accommodations for

certain categories of disability (Hernandez, Keys & Balcazar 2000). The chief conclusion to be drawn from these, and other studies is that federal disability legislation, in particular the ADA, has changed the tenor of public discourse about the participation of persons with disabilities and directed resources at enhancing the accessibility of both public and private spaces (Bricout 2003a).

At the same time, changes in discourse and even the built environment may mask underlying hesitancies and resistance that are more difficult to ferret out, but may nonetheless constitute significant barriers to community receptivity. In this sociopolitical climate, from a methodological standpoint, what might be termed the "hidden discourse" of contested rights to participation is difficult to discern because it is embedded in apparently favorable social receptivity. In other words, measures of community social receptivity, at least those culling the general population, will be susceptible to a social desirability bias, due to the influence of the ADA. In part for this reason, our research project sought out the perceptions of persons with disabilities (mobility limitations) themselves as well, with the presumption their perceptions would pierce the veil of politically correct responses.

Although it might seem counterintuitive to suspect that measures of the physical environment could be positively skewed by this phenomenon they too are vulnerable in at least two ways. First, professionals tasked with assessing the built environment have at least the potential to be swayed by ADA compliance to the detriment of transactional factors, such as the interaction between consumer needs and physical features: for example, a power door that opens reliably, but with such a delay that in winter the user is exposed to extreme cold while waiting. Thus, it is important to have persons with disabilities as both measure designers and assessors of the physical environment. Second, the "interstitial spaces" between places in the physical environment, whether curb cuts in the pavement or bus stops, and transportation media linking places are necessarily subject to local budgetary constraints, but it is not always easy or straightforward to discern if limitations in this arena are reflective of poor community receptivity or simply fiscal realities, and in the sociopolitical climate created by the ADA public officials are likely to characterize it as the latter rather than the former, both in archival documents and in interviews. These considerations of sociopolitical context shaped our approach to the design and implementation of measures, as well as to the interpretation of our findings and plans for future research.

Community Receptivity Study

The authors developed "community receptivity" as the conceptual framework for a recent 3-year research project sponsored by the US Centers for Disease Control and Prevention (CDC). The aim of that project was to design and test objective tools for assessing the community environment as it influence the participation of persons with mobility limitations. Previous

research conducted by the second author (see Gray, Gould & Bickenbach 2003, Gray & Hendershot 2000) who was the research project's principal investigator, provided a foundation for our approach to assessing community environment. In specific, two self-report measures, the Participation Survey (PARTS/M), assessing activities deemed most critical by individuals with a mobility limitation, and the Facilitators and Barriers Survey (FABS/M), assessing the barriers and facilitators to participation for individuals with a mobility limitation in the home, community, and work environments, provided a foundation for conceptualizing new measures designed for assessing the built environment, the social environment, community resources and the quality of community participation.

The first author was the co-investigator charged with developing measures of the social environment. For the purposes of this paper the development of the social environment measures will be recounted in some depth, thereby grounding our discussion of community receptivity in the design and pilot testing of an applied measure. The other measures of the built environment and the quality of participation developed for this project will be reviewed rather more briefly to provide context for the larger project. Field tests were conducted on all the measures following instrument development, but these results will be the topic of another paper in which the challenges of comparative community assessment are discussed. In this paper, the validation studies for each instrument only will be reported.

Measurement Rationale

Our rationale in developing the study measures for this project was grounded in previous research, and guided by four principles: (i) that we investigate every relevant domain of the community environment; (ii) that we actively involve consumers (persons with mobility limitations) in the design and testing of our measures; (iii) that we establish objective referents for our measures to the greatest degree possible; and (iv) that we produce tangible products useful to consumers, professionals and policymakers.

Ecological Perspective

While community receptivity provided our conceptual framework our theoretical perspective was driven by an ecological perspective on the environment; more specifically, by the ecological perspective as articulated by Urie Bronfenbrenner (Bronfenbrenner 1979, 1986, Bronfenbrenner & Morris 1998) in which the various levels of the environment are engaged in a dynamic interrelationship. The emphasis is upon the transactions between individuals and their environments, from the most immediate environments (e.g. family as microsystem) to the most distal environment (e.g. cultural norms as macrosystem). From an analytical standpoint, the ecological perspective directs the focus of community receptivity research to the mutually shaping transactions between the individual with a disability and his or her environment.

Project Study Measures

Five community receptivity assessment tools were created concurrently for the research project. Focusing on the built environment was the Community Health Environmental Checklist (CHEC), which is an audit of physical features of buildings in the community. For assessing relevant community resources, the Community Resource Index (CRI) was developed to describe community resources using data compiled from existing sources. In order to tap into the quality of participation in distinct settings (i.e. public parks and recreation areas), the Community Participation & Receptivity Survey (CPRS) was created, a self-report survey of community members with mobility limitations. Meanwhile, the social environment was assessed using two unique instruments: the Community Perception Scale/General Public (CPS/GP), a self-report survey of general public receptivity and the Community Perception Scale/Mobility Limitations (CPS/ML), a self-report questionnaire of the perceptions of mobility limited community members about the receptivity afforded them by their community.

CHEC. The assessment tool developed for the built environment was the Community Health Environment Checklist (CHEC), which is an audit of the physical features of buildings in the community. The CHEC was developed with significant input from consumers (people with mobility limitations), beginning with 25 consumers who engaged in a cognitive mapping exercise that helped identify the boundaries of community, the destinations (such as clothing stores), and the key features (such as accessible places to sit) found within the destinations, as the basis for evaluating the physical dimension of community receptivity. The final CHEC consisted of 15 destination categories (such as transportation and performance venues) and 22 attributes, or features of the destinations (such as crowding and floor surface), as listed in Tables 1 and 2, respectively. Evaluations were completed by single or paired raters using either paper or hand-held computers for easy access and accurate assessments. CHEC assessors were thoroughly trained and had access to reference and protocol information in their hand-held units.

Sixty-three destinations were rated for the first validation study with CHEC scores ranging from 4.2 (low) to 97.2 (excellent) receptivity, the Cronbach's alpha (inter-rater reliability) was 0.95. For the second validation study, 45 destinations were rated with CHEC scores ranging from 21.2 (low) to 100.0 (excellent) receptivity and a Cronbach's alpha 0.92 was obtained.

CRI. Finally, institutional and public resources were measured using the Community Resource Index (CRI), which covers eight areas, such as number of physically accessible post offices and number of advocacy groups. The CRI was developed by identifying major resource needs, and widely available database resources, primarily Internet-based (Web-based) to allow for widely disparate local information resource bases ranging from small municipalities to large metropolitan areas. Some CRI categories overlapped with CHEC and

Table 1. Twenty-two key Community Health Environmental Checklist (CHEC) features

Distances to enter building
Accessible parking
Level surfaces
Curb cuts
Doors at entrances
Signage for accessible paths to entrances
Doors inside the building
Loaner scooters or wheelchairs
Signage for accessible elements
Single level
Maneuverable spaces
Crowding
Floor surfaces
Counters and merchandise
Accessible places to sit
Adequate lighting
Accessible restroom
Drinking fountain
Accessible phone
Drive-through window
Usability
Rescue assistance

CPRS categories, such as number of physically accessible post offices (CRI), post offices (CPRS) and government and professional buildings (CHEC).

CPRS. Quality of participation was measured using the 25-site Community Participation and Receptivity Survey (CPRS) that was developed by

Table 2. Fifteen key Community Health Environmental Checklist (CHEC) destinations

Government buildings
Major tourist destinations
Performance venues
Large stores
Small stores
Self-care service providers
Dining establishment
Transportation
Healthcare providers
Health vendors
Professional service providers
Indoor leisure
Outdoor leisure
Religious facilities
Schools and libraries

modifying two standardized instruments from a previous study by the principal investigator and integrated consumers' self-report ratings of site accessibility (e.g. doctor's office) with quality of assistance offered in participation (e.g. helps a lot, helps some, no effect, limits some, limits a lot). Many CPRS categories overlapped with CHEC categories, such as restaurants (CPRS and CHEC) and sports arenas (CPRS) and performance and sports venues (CHEC).

CPS/GP and CPS/ML. Two assessment tools were developed for evaluating the social dimension of community receptivity: one aimed at the general public, called the Community Perception Scale, General Public (CPS/GP) and one aimed at people with mobility limitations living in the community called the Community Perception Scale, Mobility Limited (CPS/ML). The generally accepted definition for "mobility limitation" in the USA is that the person is unable to walk more than two city blocks unaided, which allows for a rather broad range of impairment, and consequently, for assistive technology needs, ranging from canes to motorized wheelchairs. In order to create an iconic image of the prototypical individual with a mobility limitation for the purposes of both instruments we settled upon "wheelchair users". Thus, for items in both instruments "wheelchair users" serve as shorthand for individuals with mobility limitations

The seven-item CPS/GP self-report instrument was developed using a pool of items derived from existing attitude scales (i.e. Antonak 1985, Balcazar, Mcakay-Murphy, Keys, Henry & Bryant 1998, Henry, Keys, Jopp & Balcazar 1996, Hernandez, Keys, Balcazar & Drum 1998), together with expert opinion from measurement authorities. Two themes emerged from related existing scales and the relevant research literature: social inclusion/exclusion, referring to the degree of willingness to integrate disabled people into mainstream society, and equality/inequality, referring to the extent to which parity as a practice and a principal is observed for disabled people. Those themes were also reflected in the developing CPS/GP items.

Empirical data and expert feedback were used to refine the CPS/GP through a series of three pilot tests in an iterative process. Participants were recruited locally using a non-probabilistic convenience sample drawn from locations with high volumes of passersby such as cafes and grocery stores. The research assistant handed the questionnaire to the participant and immediately collected the questionnaire upon completion.

The first pilot test of a measure was completed by 26 participants with an inter-rater reliability score (alpha) of 0.76. The second pilot test of a reduced and revised nine-item scale with a sample of 245 participants yielded an alpha of 0.64. The third and final pilot test, conducted with 97 participants on a revised and refined seven-item scale produced an acceptable alpha of 0.75. The resulting items probe key community member beliefs, such as whether people in wheelchairs want to work, using a four-point scale (strongly agree-strongly disagree). An additional 30 individuals participated locally in the final seven-item survey, resulting in a total final sample of 127.

Items three, five and six were worded negatively to avoid response sets from inattentive or disinterested participants (i.e. #3 ramps a waste of tax monies, #5 keep homes and services out of the neighborhood, and #6 accessible housing is too difficult), so these items were reverse scored. The CPS/GP final version is illustrated in Table 3. A principal components factor analysis was conducted on this version of the scale that yielded a two-factor solution congruent with the inclusion and equality themes built into the questionnaire items, namely, "integrate" (i.e. inclusion), which encompassed the first seven items (i.e. "ramps", "aisles", "government building expenses", "elevators" and "residential inclusiveness"), and "accommodate" (i.e. equality), covering the last two items (i.e. "housing alterations" and "work motivation"). The precise results are shown in Table 4. A Likert-type scale of 1 to 4 was employed for the responses, with 1 indicating strongly disagree, and 4 indicating strongly agree.

The sampling procedure prohibits any conclusions about the relationship of place within the community to social receptivity. Moreover, the results of particular items suggest fairly high social receptivity, ranging from a solid disputation of the statement that accessible housing is too difficult to build, in question #5 ($n = 124$, M = 1.54, SD = 0.726) to a strong endorsement of the statement that department stores should make aisles wide enough for wheelchairs, in question #2 ($n = 127$, M = 3.63, SD = 0.666). The details are shown in Table 5. Apparently, community members appear generally receptive to their neighbors with mobility limitations, valuing their

Table 3. Community Perceptions Scale/General Public

	Strongly disagree	Disagree	Agree	Strongly agree
1. The entrance to all restaurants should have ramps for people who use wheelchairs	1	2	3	4
2. Department stores should make sure that their aisles are wide enough for people who use wheelchairs	1	2	3	4
3. Building entrance ramps to state and local government buildings for people who use wheelchairs is a waste of taxpayer money	1	2	3	4
4. Any City Hall with more than one floor should be required to install elevators in order to make them more accessible for people who use wheelchairs	1	2	3	4
5. Homes and services for people who use wheelchairs should be kept out of residential neighborhoods	1	2	3	4
6. Building accessible housing for people who use wheelchairs is too difficult	1	2	3	4
7. Most people who use wheelchairs want to participate in paid work	1	2	3	4

Table 4. Factor analysis of Community Perceptions Scale/General Public ($n = 97$)

	Factor 1 – Integrate	Factor 2 – Accommodate
Q1. Ramps	0.900	0.163
Q2. Aisles	0.789	0.267
Q3. Waste	0.525	0.085
Q4. Elevators	0.842	−0.003
Q5. Residents	0.581	0.466
Q6. Housing	−0.035	0.924
Q7. Work	0.454	0.531

participation in commerce and acknowledging their motivation to work (borne out by national surveys such as the 2000 NOD/Harris Poll). This apparent broad-reaching goodwill is not entirely reflected in the questionnaire directed to persons with mobility limitations themselves, which while posing somewhat different questions, nonetheless taps into related topics undergirding public participation. A social desirability effect, in which participants respond with socially desirable opinions, may be particularly at play with the CPS/GP measure. To some extent, this may be an inescapable effect of the ADA, which is clearly positive, and yet perhaps not so robust as to remove underlying biases from the acute perceptions of disabled people themselves. Judgment on the utility of this measure must await extensive cross-community comparisons to see if it ferrets out local differences that overwhelm, or confound the instinct to present a charitable face to investigators.

Meanwhile, the eight-item CPS/ML self-report instrument was developed using a pool of items derived from qualitative studies interviewing individuals with a disability (i.e. Gilson, Bricout & Baskind 1998, Robinson 2000) and the expertise of consumers who served as our item development consultants was as important as the feedback from measurement authorities. Based on the community integration research literature, two themes relevant to the construction of our questionnaire items emerged: social distancing/proximity and equality/inequality. Expert feedback was used in conjunction with empirical data to refine the CPS/MLP through the course of two pilot tests. For both pilot tests non-probabilistic convenience samples of individuals with mobility limitations were recruited from the local community using both

Table 5. Community Perceptions Scale/General Public descriptive results

No.	Content	*n*	Mean	SD
1	Restaurants should have ramps	127	3.56	0.663
2	Department store aisles wide	127	3.62	0.666
3	Government ramps a waste	127	1.46	0.834
4	Install City Hall elevators	126	3.39	0.810
5	Keep out of neighborhoods	127	1.37	0.627
6	Accessible housing too difficult	124	1.54	0.726
7	People want paid work	120	3.35	0.694

snowball sampling techniques, in which case participants gave the names of others to be contacted for the study, and canvassing places were individuals with mobility limitations were likely to be found, such as medical equipment stores. Participants completed the self-report measure immediately in the presence of the research assistant from whom they received the survey.

The first pilot test of an 11-item measure was completed by 24 participants with an inter-rater reliability score (alpha) of 0.76. A second pilot test of a revised and abbreviated eight-item scale with a sample of 26 participants yielded an alpha of 0.79. A factor analysis of this measure was not feasible because the low number of cases would preclude meaningful interpretation of the factor scores. An additional 22 participants were given the same survey at a later date. The CPS/ML explores consumers' views of the receptivity of non-disabled neighbors toward them, for example asking the respondent if they get the community support they want, using the same four-point scale as the CPS/GP. The full CPS/ML is shown in Table 6.

Items four, six, seven and eight were worded negatively to avoid response sets from inattentive or disinterested participants (i.e. #4 bus riders move away from me, #6 server asks my non-disabled friend, and #7 strangers ask me about my disability, #8 strangers volunteer to help when I don't need it), so these items were reverse scored. Because of the nature of the sampling procedure it was not possible to discern how well the measure was able to discern place-bound variations in the local social receptivity environment

Table 6. Community Perceptions Scale/Mobility Limited

	Strongly disagree	Disagree	Agree	Strongly agree
1. I get support in my community for doing what I want	1	2	3	4
2. I get the information I need to get to the places I want to go in my community	1	2	3	4
3. In my community I am treated the same way that I would if I did not have a physical mobility limitation	1	2	3	4
4. When I board a local bus, people frequently move as far away from me as they can	1	2	3	4
5. When I sit in community parks, people frequently sit as close to me as they do to other people	1	2	3	4
6. When I go to local restaurants with a non-disabled friend, the server will frequently ask my friend what I want	1	2	3	4
7. Strangers in my community ask me about my disability	1	2	3	4
8. Strangers volunteer to help me frequently in my community, even when I don't need help	1	2	3	4

however, the results did speak to perceptions of variability in community receptivity depending upon the type of activity in question.

Surprisingly, in the case of questions bearing on the impact of physical proximity on community receptivity a significant portion of respondents did not respond. Only 37 of 48 participants responded to the statement: "when I sit in community parks, people frequently sit as close to me as they do to others". Those who did respond were fairly strong in their endorsement of the statement ($n = 37$, M $= 2.73$, SD $= 0.902$). Only 28 participants responded to the statement "when I board a local bus, people frequently move far away". They responded, however, in roughly mirror fashion to the community park seating question ($n = 28$, M $= 1.89$, SD $= 0.685$), indicating fairly strong disagreement with the negative statement about social distancing in the bus. On the face of it, participant reports of similar community receptivity in the case of less intimate (i.e. park) and more intimate (i.e. bus) surroundings appears to contradict a pattern of behavior that has been well documented in the research literature in which the favorable attitudes of non-disabled individuals toward disabled people decrease in the face of more intimate situations or relations (i.e. Berry & Meyer 1995, Olkin & Howson 1994).

Unfortunately, the large proportions of non-respondents, for which we have no explanation, render any firm interpretation of those findings highly problematic. What is clear is that the mean scores are lower than those in the general public survey, with the most positive endorsement of community receptivity ($n = 48$, M $= 2.92$, SD $= 0.710$) in question #2, on getting needed information to get where I want to go, lagging behind the endorsements of all positively worded questions in the GPS (compare Tables 5 and 7 for details).

Meanwhile, the negatively-worded question #8, about strangers volunteering unneeded assistance elicited something closer to agreement than disagreement ($n = 46$, M $= 2.67$, SD $= 0.896$). Implicit in this finding is the suggestion that community members might be responding to a stereotype of disabled people as generally lacking ability, hence engendering unequal treatment in the form of unwanted assistance. Thus, from the perspective of mobility limited people themselves, the community does not appear to quite as uniformly receptive as portrayed by the general public.

Table 7. Community Perceptions Scale/Mobility Limited descriptive results

No.	Content	n	Mean	SD
1	I get community support	48	2.83	0.781
2	I get information I need	48	2.92	0.710
3	Treated the same	47	2.72	0.852
4	In local bus move far away	28	1.89	0.685
5	In community park sit close	37	2.73	0.902
6	Server frequently asks my friend	46	2.00	0.730
7	Strangers ask about my disability	46	2.33	0.762
8	Strangers volunteer to help	26	2.67	0.896

We used both measures (CPS/GP and CPS/ML) in the same community to get two perspectives, and a more diverse view of community social receptivity. The picture is indeed different with the CPS/ML findings a bit more nuanced and less overtly positive than the CPS/GP findings, although the results cannot speak reliably to within-community or between-community effects.

Conclusion

Hopes of aggregating data from the physical environment with perceptual data on the social environment to create a coherent community profile appear to have been overly sanguine for several reasons: first, the two social receptivity measures do not jibe in their, albeit limited, portrayals of social receptivity. Second, the validation study sampling for the various measures did not map precisely upon one another making it impossible to connect characteristics of the social (CPS) and built environment (CHEC) with each other, or with the quality of community participation (CPRS). Preliminary results from this study must be followed up by future research aimed at achieving compatibility for the receptivity categories that have emerged from our research in order that meaningful community receptivity comparisons can be made.

From the broader standpoint of "transferability" to other societies and cultures, all the instruments will necessarily require not merely hybridization, where the American instrument items are altered to be meaningful in that country or culture, but also indigenization, or crafting altogether new items to meet local needs and to reflect local circumstances, noting that our research project was as heavily influenced by the ADA-inspired sociopolitical context as by the accouterments of place, policy and interpersonal relations in a developed Western nation. Nonetheless, the broad elements of our research, its philosophical, theoretical and pragmatic underpinnings may have wide relevance and applicability to local circumstances in other countries.

Future research will require a multiplex approach, incorporating historical evidence, the investigation of critical incidents, mixed methods research and repeated measures over suitable time intervals. In parallel to our focus on grounding our understanding of the physical and social environment in local knowledge and conditions, we plan to approach future research on community receptivity beginning with the social networks that describe "communities", and the extended web of infrastructure and resources that define and link the places where people "go"; whether in person, or virtually, to achieve the level of public participation to which they aspire. The true test of community receptivity will always be the capacity of the physical and social environments to meet and foster not merely needs, but aspirations, many of which have yet to be entertained either in the USA or elsewhere across the globe.

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References

Antonak, R. F. (1985). Construct validation of the scale of attitudes toward disabled persons, *Journal of applied rehabilitation counseling*, 16(1), pp. 7–10.

Bader, C. & DeMaris, A. (1996). A test of the Stark-Bainbridge theory of affiliation with religious cults and sects, *Journal for the scientific study of religion*, 35(3), pp. 285–303.

Baker, A. C. (1999). Receptivity to racial and ethnic diversity, *Psychological reports*, 84, pp. 35–41.

Balcazar, F., Mcakay-Murphy, M., Keys, C., Henry, D. & Bryant, F. (1998). Assessing perceived agency adherence to the values of community inclusion, *American journal on mental retardation*, 102, pp. 451–463.

Bedini, L. A. (1993). Transition and integration in leisure for people with disabilities, *Parks & recreation*, 28(11), pp. 20–25.

Beebe, T., Harrison, P., Sharma, A. & Hedger, S. (2001). Community readiness survey: development and validation, *Evaluation review*, 25(1), pp. 55–71.

Berry, J. & Meyer, J. A. (1995). Employing people with disabilities: impact of attitude and behavior, *Rehabilitation psychology*, 40(3), pp. 211–222.

Bickenbach, J. E., Chatterji, S., Badley, E. M. & Ustun, T. B. (1999). Models of disablement, universalism and international classifications of impairments, disabilities and handicaps, *Social science and medicine*, 48(9), pp. 1173–1187.

Bijker, W. E. (1996). The need to love technology, *Nature*, 383, pp. 230.

Bijker, W. E. & Bijstreveld, K. (2000). Women walking through plans: technology, democracy, and gender identity, *Technology & culture*, 41, pp. 485–515.

Brent, J. (2004). The desire for community: illusion, confusion and paradox, *Community development journal*, 39(3), pp. 213–223.

Bricout, J. C. (2003a). Has the Americans with Disabilities Act gone too far? No, in: H. Karger, J. Midgley, & B. Brown (Eds), *Controversial issues in social policy, second edition*, pp. 150–160 (Boston: Allyn and Bacon Publishers).

Bricout, J. C. (2003b). Partnering with the 21st Century workplace: leveraging workplace ecology, *Work: a journal of prevention, assessment and rehabilitation*, 21, pp. 45–56.

Bricout, J. C. (2004) Historical and emerging trends in US disability policy: ideas, technology and complexity in the struggle for citizenship, in: E. Yamashita (Ed.), *International comparative study on disability programs in the 21st century in Asia and the Pacific*, Japan College of Social Work, Social Work Research Institute, pp. 53–65 (Tokyo, Japan: Kyoshin, Co. Ltd).

Bronfenbrenner, U. (1979). *The ecology of human development* (Cambridge, MA: Harvard University Press).

Bronfenbrenner, U. (1986). Ecology of family as a context for human development research perspectives, *Developmental psychology*, 22(6), pp. 723–742.

Bronfenbrenner, U. & Morris, P. A. (1998). The ecology of developmental processes, in: W. Damon (Ed.), *Handbook of child psychology, 5th edition*, pp. 993–1028 (New York: Wiley).

Burkhauser, R. V. (2001). An economic perspective on ADA backlash, *Berkeley journal of employment and labor law*, 21, pp. 367–388.

Cambrosio, A. (1993). Aramis, ou l'Amour des Techniques; Nous n'Avons Jamais été Modernes; Essai d'Anthropologie Symétrique (Aramis, or the love of techniques; we were never modern; an esssay of Symmetrical Anthropology), *Contemporary sociology*, 22(4), pp. 485–487.

Cook, J. A. & Burke, M. S. (2002). Public policy and employment of people with disabilities: exploring new paradigms, *Behavioral science and the law*, 20, pp. 541–557.

Cummins, R. A. & Lau, A. L. (2003). Community integration or exclusion? *Journal of applied research in intellectual disabilities*, 16(2), pp. 145–157.

Eldar, R. (2000). Integrated institution-community rehabilitation in developed countries: a proposal, *Disability and rehabilitation*, 22(6), pp. 266–274.

Escobar, A. (1994). Welcome to cyberia: notes on the anthropology of cyberculture, *Current anthropology*, 35(3), pp. 211–231.

Fryson, S. J. (1999). Developing and applying concepts about community, *Journal of community psychology*, 27(3), pp. 347–365.

Garcia, R. (2002). *The future of disabled people in the world: human development and disability* (Ankara, Turkey: Annual Assembly of the Club of Rome).

Gilson, S. F., Bricout, J. C. & Baskind, F. R. (1998). Listening to the voices of individuals with disabilities, *Families in society*, 79(2), pp. 188–197.

Gray, D. B., Gould, M. & Bickenbach, J. E. (2003). Environmental barriers and disability, *Journal of architectural and planning research*, 20(1), pp. 29–37.

Gray, D. B. & Hendershot, G. E. (2000). The ICIDH-2: developments for a new era of outcomes research, *Archives of physical medicine and rehabilitation*, 81, pp. S10–S14.

Guo, B., Bricout, J. C. & Huang, J. (2005). A common open space or a digital divide? A social model perspective on the online disability community in China, *Disability & society*, 20(1), pp. 49–66.

Henry, D., Keys, C., Jopp, D. & Balcazar, F. (1996). The community living attitudes scale, Mental retardation form, *Mental retardation*, 34(3), pp. 149–158.

Hernandez, B., Keys, C. & Balcazar, F. (2000). Employer attitudes toward workers with disabilities and their ADA employment rights, *Journal of rehabilitation*, 66(4), pp. 4–16.

Hernandez, B., Keys, C., Balcazar, F. & Drum, C. (1998). Construction and validation of the disability rights attitude scale, *Rehabilitation psychology*, 43(3), pp. 203–218.

Hobfoll, S. E. (1998). *Stress, culture and community: the psychology and philosophy of stress* (New York: Plenum Press).

Homan, M. S. (1999). *Promoting community change, 2nd edition* (Pacific Grove, CA: Brooks/Cole).

Kendall, E., Buys, N. & Larner, J. (2000). Community-based service delivery in rehabilitation: the promise and the paradox, *Disability and rehabilitation*, 22(10), pp. 435–445.

Lahiri-Dutt, K. (2004). I plan, you participate: a southern view of community participation in urban Australia, *Community development journal*, 39(1), pp. 13–27.

Latour, B. (1988). How institutions think, *Contemporary sociology*, 17(3), pp. 383–385.

Latour, B. (1991). The impact of science studies on political philosophy, *Science, technology & human values*, 16(1), pp. 3–19.

Latour, B. (2000). When things strike back: a possible contribution of "science studies" to the social sciences, *British journal of sociology*, 51(1), pp. 107–123.

Latour, B. (2002). Morality and technology: the end of means, *Theory, culture & society*, 19(5/6), pp. 247–260.

Latour, B. (2003). Is Re-modernization occurring and if so, how to prove it? A commentary on Ulrich Beck, *Theory, culture & society*, 29(2), pp. 35–48.

Lev-Wiesel, R. (2003). Indicators constituting the construct of 'perceived community cohesion', *Community development journal*, 38(4), pp. 332–343.

Lysack, C. & Kaufert, J. (1999). Disabled consumer leaders' perspectives on provision of community rehabilitation services, *Canadian journal of rehabilitation*, 12(3), pp. 155–164.

Mitchell, R. (1999). Community-based rehabilitation: the generalized model, *Disability and rehabilitation*, 21(10/11), pp. 522–528.

Miles, S. (1996). Engaging with the disability rights movement: the experience of community-based rehabilitation in South Africa, *Disability & society*, 11(4), pp. 510–517.

Nock, D. A. (1989). Differential ecology receptivity of conversionist and revolutionist sects, *Sociological analysis*, 50(3), pp. 229–246.

NOD/Harris (2000) Survey of Americans with disabilities: executive summary. National Organization on Disability. Available at: http://www.nod.org/content.cfm?id =1076 (accessed 23 October 2004).

O'Day, B. & Goldstein, M. (2005). Advocacy issues for the 21st century: key informant interviews, *Journal of disability policy studies*, 15(4), pp. 240–251.

Olkin, R. & Howson, L. (1994). Attitudes toward and images of physical disability, *Journal of social behavior and personality*, 9(5), pp. 81–96.

Prezza, M., Amici, M., Roberti, T. & Tedeschi, G. (2001). Sense of community referred to the whole town: its relations with neighboring, loneliness, life satisfaction and area of residence, *Journal of community psychology*, 29(1), pp. 29–52.

Pretty, G., Rapley, M. & Bramston, P. (2002). Neighbourhood and community experience, and the quality of life of rural adolescents with and without an intellectual disability, *Journal of intellectual & developmental disability*, 27(2), pp. 106–116.

Price, L. A. & Gerber, P. J. (2001). At second glance: employers and employees with learning disabilities in the Americans with Disabilities Act era, *Journal of learning disabilities*, 34(3), pp. 202–210.

Resnicow, K., Soler, R., Briathwaite, R. L., Ahluwalia, J. S. & Butler, J. (2000). Cultural sensitivity in substance use prevention. *Journal of community psychology*, 28(3), pp. 271–290.

Robinson, J. E. (2000). Access to employment for people with disabilities: findings of a consumer-led project, *Disability & rehabilitation*, 22(5), pp. 246–253.

Scheid, T. L. (1999). Employment of individuals with mental disabilities: business response to the ADA challenge, *Behavioral sciences and the law*, 17, pp. 73–91.

Schur, L. A. (1998). Disability and the psychology of political participation, *Journal of disability policy studies*, 9(2), pp. 3–31.

Sinnema, G. (1992). Youth with chronic illness and disability on their way to social and economic participation, *Journal of adolescent health*, 13(5), pp. 369–371.

Turmusani, M., Vreede, A. & Wirz, S. L. (2002). Some ethical issues in community- based rehabilitation initiatives in developing countries, *Disability & rehabilitation*, 24(10), pp. 558–564.

Unger, D. (2002). How do front-line supervisors in business perceive the performance of workers with disabilities, in: D. Unger, J. Kregel, P. Wehman, & V. Brooke (Eds), *Employers' views of workplace supports*, pp. 33–46 (Richmond, VA: Virginia Commonwealth University Rehabilitation and Research Center).

Unger, D., Wehman, P., Yasuda, S., Campbell, L. & Green, H. (2002). Human resource professionals and the employment of people with disabilities, in: D. Unger, J. Kregel, P. Wehman, & V. Brooke (Eds), *Employers' views of workplace supports*, pp. 13–32 (Richmond, VA: Virginia Commonwealth University Rehabilitation and Research Center).

Ville, I., Crost, M., Ravaud, J. F. & Tetrafigap Group (2003) Disability and a sense of community belonging: a study among tetraplegic spinal-cord injured persons in France, *Social science & medicine*, 56, pp. 321–332.

Williams, R. (1999). The contested terrain of environmental justice research: community as a unit of analysis, *The social science journal*, 36(2), pp. 313–328.

Williams, C. C. & Windebank, J. (2000). Helping each other out: community exchange in deprived neighbourhoods, *Community development journal*, 35(2), pp. 146–156.

Ziersch, A. M. & Baum, F. E. (2004). Involvement in civil society groups: is it good for you? *Journal of epidemiological community health*, 58, pp. 493–500.