

Assistive Mobility Technologies in Urban Neighborhood Environments:

Research to use and improve ICF's
environmental and activity/participation
domains



12th Annual North American Collaborating Center Conference on ICF

**LIVING IN OUR ENVIRONMENT:
The Promise of ICF**

2006
JUNE 5 to 7
Vancouver, British Columbia (Canada)

Funding

- Grant from the Robert Wood Johnson Foundation (RWJF)
 - “Active Living Research” funding stream – based at U. of California, San Diego
 - 1.5 year, \$100 K – for exploratory research



Research Staff

- Corinne Kirchner and Elaine Gerber, *co-Principal Investigators*; Brooke Smith, *Project Director*
 - American Foundation for the Blind
 - Headquarters and project based in New York City



Project Aims - 1

- Use/improve ICF as a conceptual framework to:
 - Clarify concept of “mobility limitations”;
 - Define research subgroups according to how (i.e., with what technology) they access the physical environment;
 - Elaborate the environmental domain based on findings of community features
- Identify specific community environmental barriers and facilitators to mobility (physical activity) for sub-groups of people with disabilities

Project Aims - 2

- Advocate in the study community (New York City) for improved access to physical activity based on research findings



Problem statement - 1

- The term “mobility impairments” is common
 - It confounds “impairments” with “activities/participation”
 - In practice, term refers to “*motor* impairments”
 - Effect of confounding on policy awareness is to overlook mobility-related needs of persons with other impairments, e.g., visual impairments, cognitive impairments

Problem statement - 2

- ICF's environmental factors section is underdeveloped regarding:
- A. Technology to access the environment, i.e., “Assistive Mobility Technologies” (AMTs)
 - Examples:
 - Motorized wheelchairs
 - Manual wheelchairs
 - Long canes, used in “orientation & mobility (O&M)” related to visual impairment
 - Guide dogs, specially trained for O&M related to visual impairment
 - Other, e.g., support canes, crutches, scooters, etc.

Problem statement - 3

- B. Community types (urban, suburban, rural)
 - There is a need to distinguish among types of sub-areas within each community type.
 - We focus on “neighborhood” accessibility within the urban community type.



Study approach - 1

- Rationale for exploratory approach
 - “Active Living” research program on community factors in physical activity has avoided disability issues
 - — in fact, has generally excluded them.
 - “Orientation & Mobility” research involving people with visual impairment is still preliminary in context of community participation
 - Research on “mobility limitations” has not been designed to compare and contrast types of AMTs and types of impairments – motor impairments and visual impairments.

Study approach - 2

- Broad research question:

How does community (i.e., neighborhood) accessibility affect activity/participation for people using different AMTs?



Study approach - 3

- Variation in community contexts
 - Neighborhoods within one metropolitan (urban) community:
 - New York City
 - Five boroughs vary widely in “car culture” and related urbanism features.
 - Neighborhoods vary in being perceived as “high” or “low” in accessibility by people using different types of AMTs
- Variation in participants’ levels of (reported) physical activity/social participation
 - Focus on activity outside the home
 - “Physical activity” broadly defined to include shopping, visiting, etc. – thus encompasses most social participation.

Project design

- Non-random sample recruited thru CILs, etc.
- Telephone survey #1 (N=187) to classify participants as high vs. low on activity and neighborhood accessibility, within AMTs
- Random selection from survey respondents of subsample for ethnographic phase
 - Interview and observation in community activity
 - N=8 per AMT, high/low on access & activity
- Telephone survey #2 (N =~ 170) to expand findings on community access and activity

Findings – 1

Perceived Neighborhood Accessibility by AMT Type (Illustrative Measure)				
Perceived neighborhood accessibility	Manual Wheelchair Users (%)	Motorized Wheelchair Users (%)	White Cane Users (%)	Dog Guide Users (%)
Completely	10	10	42	33
Mostly	65	55	48	56
Mostly Not and Hardly at All	25	25	10	11
TOTAL	100%	100%	100%	100%
(Base N)	(40)	(51)	(50)	(45)

Findings - 2

Self-reported Physical Activity by AMT Type (Illustrative Measure)				
Self-reported physical activity	Manual Wheelchair Users (%)	Motorized Wheelchair Users (%)	White Cane Users (%)	Dog Guide Users (%)
High	48	33	60	71
Middle	30	33	26	27
Low	22	33	14	2
TOTAL	100%	99%	100%	100%
(Base N)	(40)	(51)	(50)	(45)

Findings - 3

Physical Activity by Perceived Neighborhood Accessibility (Illustrative Measures)			
Perceived Neighborhood Accessibility			
Self-reported physical activity	Completely (%)	Mostly (%)	Mostly Not Hardly at All (%)
High	58	51	50
Middle	29	33	21
Low	13	16	29
TOTAL	100%	100%	100%
(Base N)	(40)	(51)	(50)

Conclusions

- ICF helps to sort out “mobility limitations” from impairments, and to communicate about this.
- ICF provides a general slot for “AMTs” but needs attention to specifying and classifying types of AMTs.
- Urban community type contains significant variation in sub-area contexts re access.
- Exploratory study was encouraging re feasibility of methods, notably the acceptability & value of ethnographic phase.

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