

# Approaches to Environmental Measurement

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# Thanks to Committee Members

- Excellent responses to the original draft paper have been incorporated to the new draft and will serve as discussion focuses.
- Important questions raised which will be presented here to the full group.
- Seeking thoughtful input from everyone – this is not a simple project.

# Pursuing an Environmental Measure in a Cross-cultural Context

- One of the commentators on the proposal raised this as a primary question.
  - > It is a totally appropriate question
  - > However, it is one I would prefer to address after the discussion of what I think is possible rather than before.
  - > It is certainly the purview of this group to review the research, examine the recommendations and decide not to pursue this area of development any further.

# Three Part Presentation

- Identify 3 approaches to collecting data on the environment.
  - Discuss which approach best suits our purpose
- Identify the hierarchy of environmental factors which may be possible to collect cross-culturally.
  - Discuss which areas best suit our purposes
- Identify next steps for the question development and testing process.
  - Discuss if this is a project we want to pursue and if so how to go about next steps.

# Purpose of Environmental Measurement

- The objective of equalization of opportunity was put forth as the guiding principle for the development of the short set of questions .
- That approach was used to identify individuals who could be seen to be “at risk” of having less than equal opportunity for participation in their respective cultures

# Purpose of Environmental Measurement - continued

- However, identifying the person “at risk” of discrimination or disadvantage is only a part of the equalization equation.
- The nature of the environmental facilitators or barriers are the other piece:  
Risk +/- Environment = Equal Participation
- Therefore the purpose of environmental measurement is to identify the environmental facilitators or barriers that support or prevent participation.

# Two Levels of Environment

- Societal level – reflects the structure and organization of various systems in the community that provide shelter, food, protection, transportation, etc. for the total population
- Individual level – reflects the aspects of the larger environment with which the individual comes into contact.

# Disability as it Relates to the Environment

- Environment has a key role in creating disability when the individual with a functional difficulty attempts to act in their home and community.
- We currently know a lot about what the person brings to the attempt to act (the short set and extended set) but at this point we have no information on environmental barriers or facilitators that influence their activities.

# Environment and Participation

- Environment is the physical, organizational and attitudinal context in which all activity takes place.
- Participation (or non-participation) is the result of an interaction between the individual and the environment and is influenced not only by the individual's choice to be involved in a specific activity but also by the nature of the environment – the barriers or facilitators that exist.

# Major Approaches to Measuring Environment

- ◉ Level of Disability Approach
- ◉ Social Structural/Descriptive Approach
- ◉ Participation Approach

# Level of Disability Approach

- Source of this approach has been produced by a number of rehabilitation organizations beginning with the Craig Hospital Inventory of Environmental Factors.
- At least one of these approaches attempts to capture both barriers and facilitators experienced in the environment.

# Level of Disability Approach: First Type of Questions

- In the past 12 months, how often has the availability of transportation been a problem for you? (Whiteneck et al, 2004)
  - > Daily
  - > Weekly
  - > Monthly
  - > Less than monthly
  - > Never
  - > Not applicable
- When this problem occurs has it been a big problem or a little problem?
  - > Big problem
  - > Little problem

# Level of Disability Approach: Second Type of Questions

- How frequently do you encounter the home feature (stairs)? (Gray et al, 2008)
  - > Daily
  - > Weekly
  - > Monthly
  - > Less than monthly
- How much does the home feature (stairs) influence participation in activities?
  - > Help a lot
  - > Help some
  - > Limit some
  - > Limit a lot

# What the Level of Disability Approach Captures

- Frequency and size of problem experienced
- Level of problem created (first question set).
- Whether or not the environmental component is a barrier or facilitator (second question set).
- Resulting measure provides indication of the magnitude of the person/environment interaction as a barrier or as a barrier or facilitator.
- The resulting score is associated with the person and reflects their level of disability in the environment.

# Structural/Descriptive Approach

- This approach can be found in the European Health and Social Integration Survey (EHSIS) and the Life Opportunities Module of an English National Statistics Office Survey.
- This approach has been used both in a survey methodology and as an area assessment of receptivity of the physical environment (based on observation of buildings).

# Structural/Descriptive Approach: EHSIS Question

- This next question is about accessibility to buildings that everyone uses including workplaces, schools, offices, shops and other people's homes.
- Thinking of all the buildings you want to use, is there anything which prevents you from using them whenever you want to? Code all that apply.
  - > Difficulties parking (such as not enough spaces, cost)
  - > Difficulties getting into or out of buildings (such as footpath design, lack of ramps, doors too narrow)
  - > Difficulties inside buildings (such as layout, space, signs, noise, seating, toilets, lifts)
  - > A longstanding health condition, illness or disease
  - > Longstanding difficulties with basic activities (such as seeing, hearing, concentrating, moving around)
  - > Lack of confidence or attitudes of other people
  - > Other reasons
  - > No, nothing prevents me from using buildings whenever I want to

# Structural/Descriptive Approach: Alternative Method

- The Community Health Environment Checklist was developed to measure the receptivity of the physical environment for persons with mobility impairments (Stark et al, 2007).
- It was developed for use by allied health professionals, community planners and policy makers to assess environmental barriers that effect participation.

# Structural/Descriptive Approach Alternative Method - continued

- Examples of items on the Community Health Environment Checklist include:
  - › Are the distances between the public transportation drop off areas (i.e., bus stops) and the building's accessible route as short as possible?
  - › Are there accessible parking spaces with adequate widths and aisles?
  - › Are doors lightweight?
  - › Is the floor surface smooth and easy to walk or roll over?
  - › Are all features of the building accessible?
  - › Is there adequate lighting to see the stair steps of obstacles in the path of travel?

# What the Structural/Descriptive Approach Captures

- The EHSIS survey example attempts to capture a variety of characteristics of buildings that may provide barriers to access, although some answer categories also provide alternative responses that ignore the barriers and focus on the person's functioning limitations or refer back to the condition or impairment.

# What the Structural/Descriptive Approach Captures - continued

- The physical receptivity list provides a relatively complete assessment of barriers in various buildings (which can be mapped) but focuses on one type of functional difficulty. Checklists that cover most commonly found functional limitations would be preferred.
- The structural/descriptive approach provides (for the most part) information about the actual barriers that are (or can be) experienced by the person in the buildings they either actually use or may want to use.

# Participation Approach: EHSIS Question

- I would like to ask you about hobbies or interests that involve spending time with other people, for example, belonging to a club or association, or taking part in sporting or fitness activities.
- Is there anything which prevents you from pursuing hobbies or interests whenever you want to?
  - > Financial reasons (lack of money, can't afford it)
  - > Too busy (with work, family, other responsibilities)
  - > Lack of knowledge or information (about what is available)
  - > A longstanding health condition, illness, or disease
  - > Longstanding difficulties with basic activities (such as seeing, hearing, concentrating, moving around)
  - > Lack of convenient or available transport
  - > Distance (to venue)
  - > Difficulties accessing or using buildings
  - > Lack of self confidence or attitudes of other people or no one to go with
  - > Other reasons
  - > Don't want a hobby or interest
  - > No, nothing prevents me from pursuing hobbies or interests whenever I want to

# Participation Approach: Life Opportunities Module

- In an ideal world where you were able to do whatever you like, which of the things on this card would you be interested in doing?
  - › Going on holiday
  - › Visiting friends
  - › Spending time with family
  - › Playing sport
  - › Charitable or voluntary work
  - › Going to a museum or place of historic interest
  - › Going to the theatre, cinema and other arts activity
  - › Going to the library or archive
  - › None of these

# Participation Approach: Life Opportunities Module -continued

- Looking at the card again (previous slide), in the last 12 months, which things have you done as much as you like?
- What is stopping you from going on holiday (more)?
  - > Too busy/not enough time
  - > Too expensive
  - > No one to go with
  - > Fear of crime
  - > Fear of crowds
  - > Lack of availability
  - > Lack of help or assistance
  - > A health condition, illness or impairment
  - > A disability
  - > Attitudes of other people
  - > Difficulty with transport
  - > Difficulty using facilities
  - > Feel that I am not welcome
  - > Other reasons (please specify)
  - > Difficulty getting into buildings
  - > Caring responsibilities
  - > Do not need or want to

# What the Participation Approach Captures

- Represents individual behavior – a slightly different approach to establish the level of “disability” as represented by the person/environment interaction.
- Again a measure of individual choice of areas of participation and sources of barriers. Answers provide a combination of personal characteristics (fears) along with physical environmental problems.
- Unfortunately both examples complicate the examination of the source of environmental prevention of participation by offering possible answers that locate all the prevention within the person through blaming the condition or functional difficulty.

# How Current Environmental Measurement Works

- Frequency and level of barrier experience produce a measure of the person/environment interaction and provide a measure of “disability” or the person/environment interaction
- A structural/descriptive approach provides information on factors that prevent use/access to buildings, transportation, etc.

# How Current Environmental Measurement Works - continued

- Participation approach provides information on barriers to specific activities without necessarily describing the actual environmental barriers.

# What do we want to Measure?

- The level of Disability a person experiences when acting in their environment?
- The nature of the environment that the person experiences within the boundaries of their location in the population?
- The factors that stop or limit a person from their choices to participate?

# Which Approach is least Influenced by Cultural Norms?

- Cross cultural measurement is difficult
- Initial question development of short set focused on person – while person's behavior may be different cross-culturally, people are all the same.
- However, building styles, transportation, are all different cross culturally **but** they serve the same purposes, transporting, housing, providing access to merchandise, protection, etc.
- Comparisons can be made across common facilities/locations (housing); common services (transportation) and common activities (work).

# Recommendation to the Group

- Measurement of Environment focus on a descriptive approach to physical structural and commonly used services provided across nations
- Identifying service and structural areas which have high rates of barriers in a particular country can focus the individual nations on improvements which will facilitate equalization of opportunity

# Discussion

- Questions?
- Comments

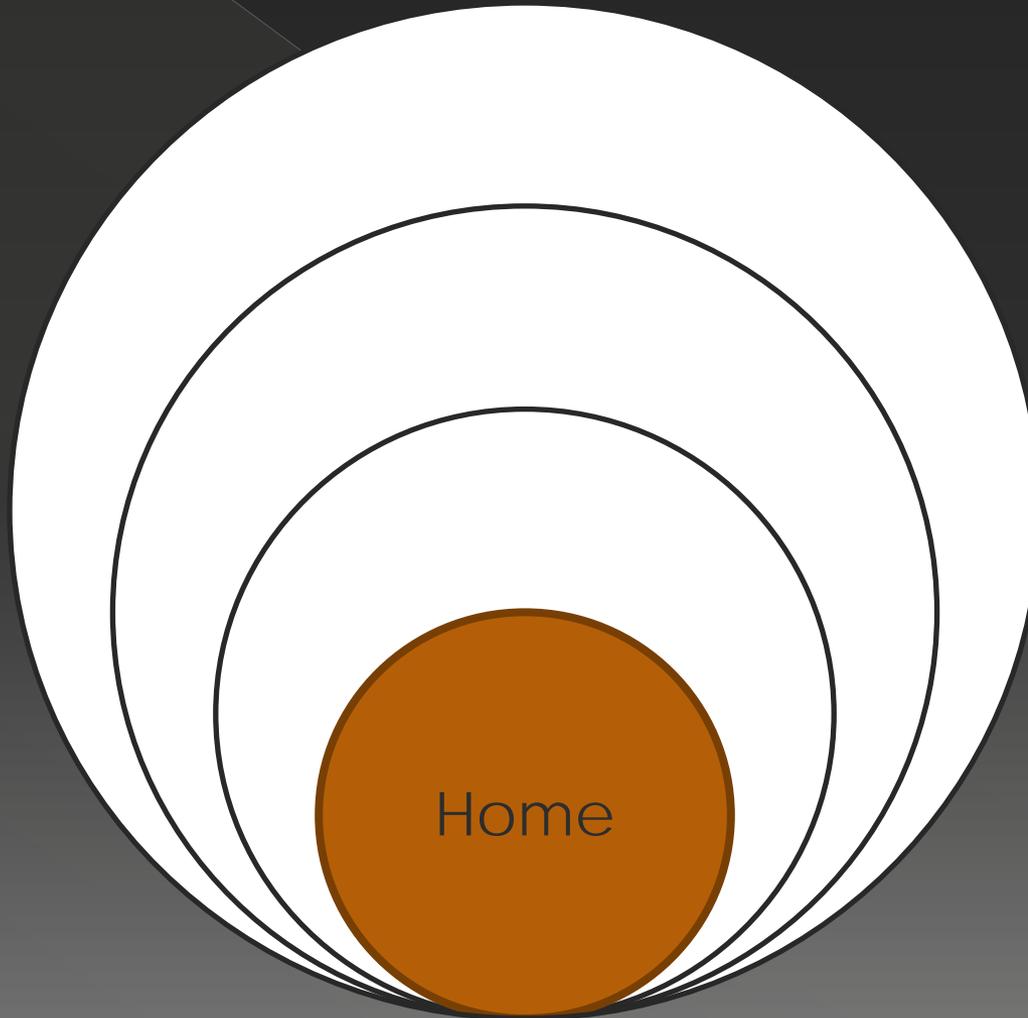
# What Areas of Environment to Measure

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# Focusing the Approach to Environmental Questions

- Identifying environmental areas that have the greatest impact.
- Identifying environmental areas with the most commonality across cultures/nations
- Identifying types of questions/answer categories which limit focus of question to the environment

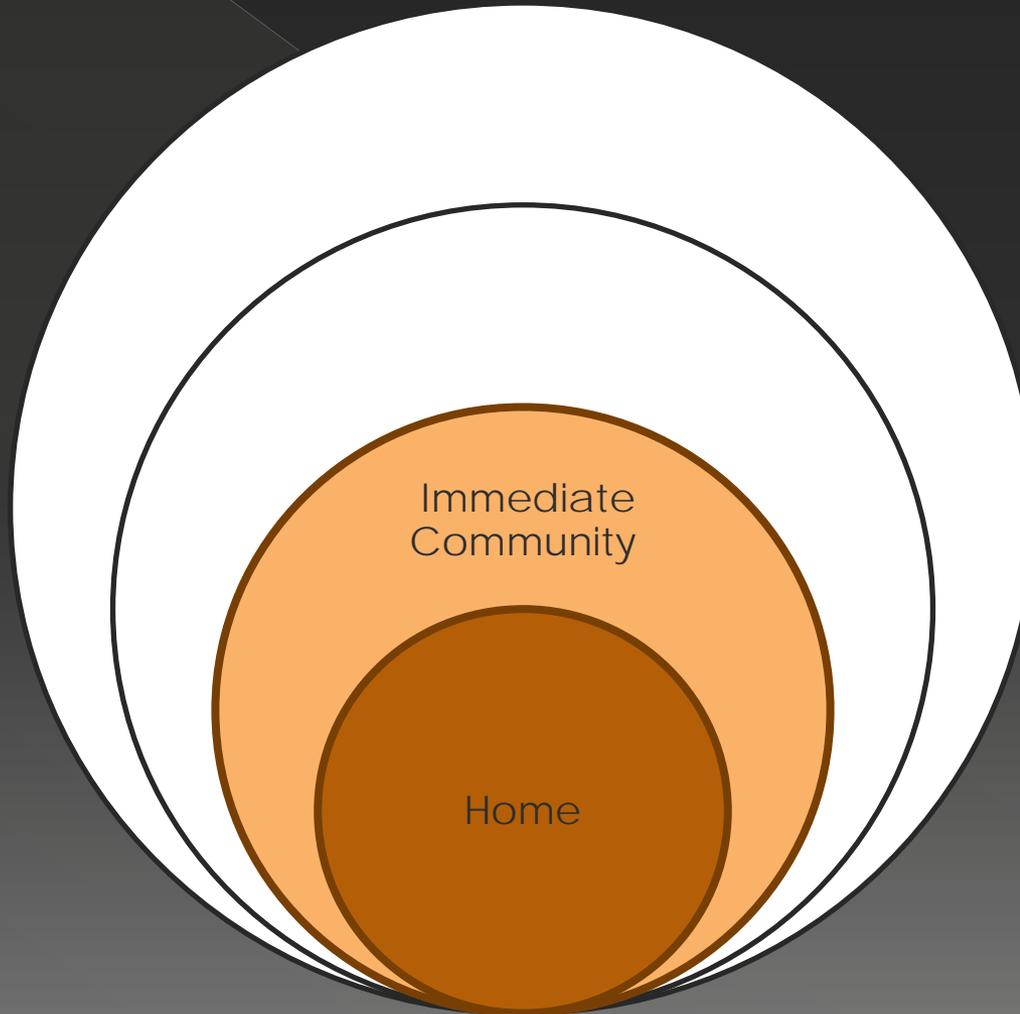
# Where Do We Spend Our Time?



**Activities Environment  
can influence:**

- >Preparing meals
- >Toileting/ bathing
- >Interacting with family
- >Sleeping

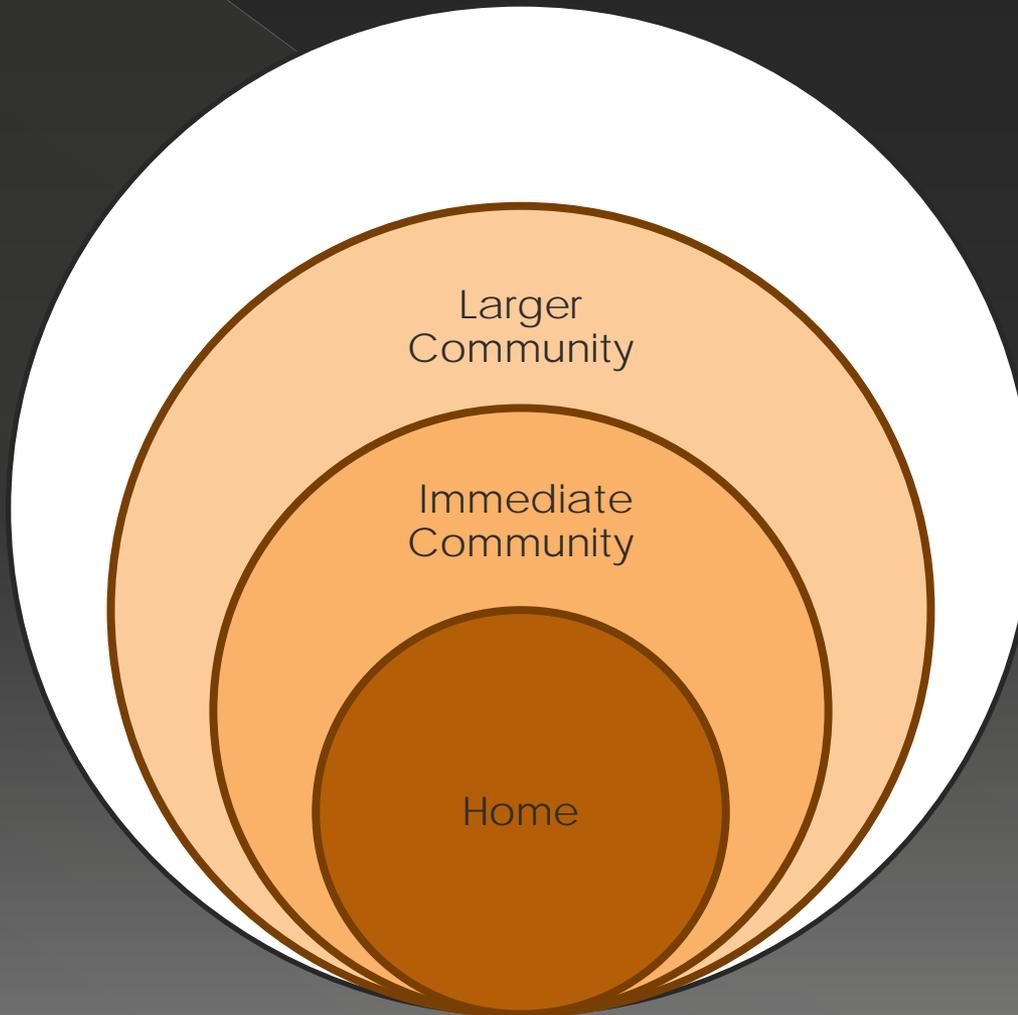
# Where Do We Spend Our Time?



## Activities Environment can influence:

- > Visiting Neighbors
- > Safety
- > Moving around outdoors
- > Availability of shopping areas

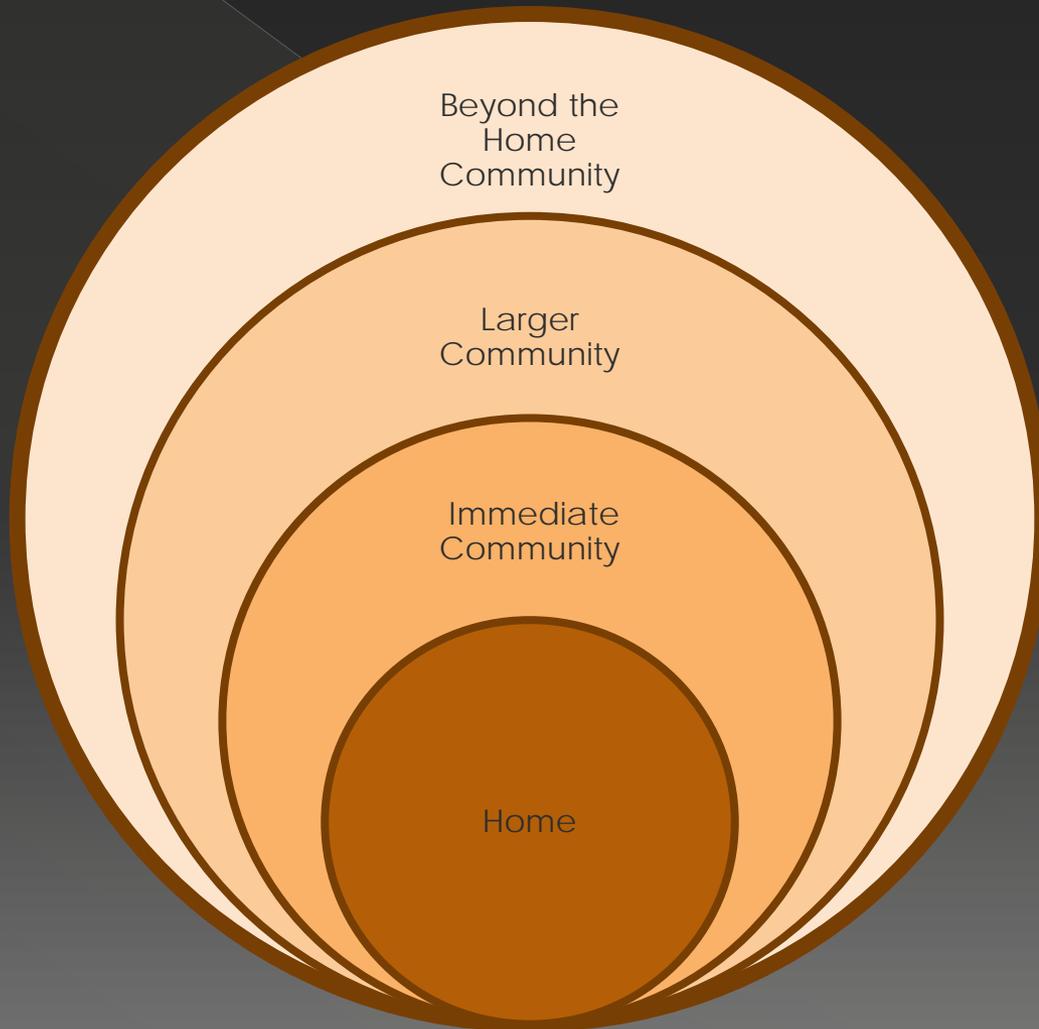
# Where Do We Spend Our Time?



## Activities Environment can influence:

- > Employment opportunities
- > Availability of shopping areas
- > Availability of museums and other leisure activities
- > Availability of health facilities
- > Access to areas of civic responsibilities

# Where Do We Spend Our Time?



## Activities

Environment can influence:

- > Visiting Family
- > Business travel
- > Leisure activities

# Common Issues Across the Four Areas of Activity

- One way to make the examination of environmental factors more manageable for survey use is to try to focus on environmental aspects that have a commonality across various activities and cultures.
- Two aspects come to mind: **building structure** associated with accessibility and usability and **transportation**, which is essential to get individuals to other places outside their homes.

# Cultural Variety in Building Structure and Transportation

- ◉ There are great variations in how buildings are structured or transportation is carried out cross-culturally.
  - Buildings can be either single storied or if multistoried, have steps or elevators. The number of rooms, sizes and location of rooms may differ.
  - Likewise transportation may involve a sophisticated system of underground and above ground vehicles or simpler methods that are slower but accomplish the same goal
  - Does this preclude cross-cultural measurement?

# Do Differences Preclude Cross-Cultural Measurement?

- ◎ Think about a question's focus:
  - > LOM: Are there rooms in your home which you have difficulty getting into?
  - > EHSIS: Thinking of all the buildings you want to use, is there anything which prevents you from using them whenever you want to?
  - > Answer categories include:
    - Difficulties inside buildings (such as.....)
    - Difficulties getting into of out of buildings (such as.....)

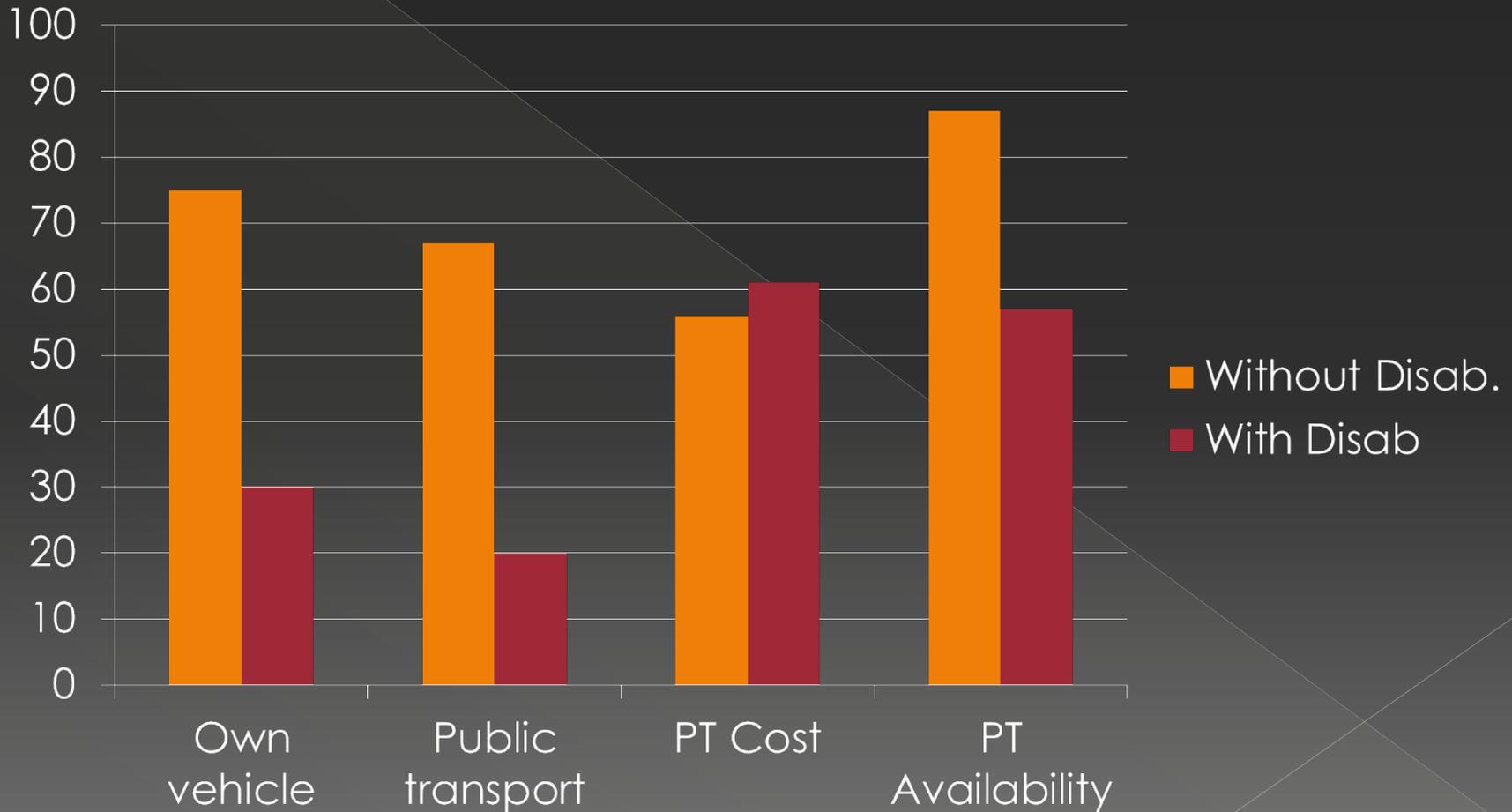
# Do Differences Preclude Cross-Cultural Measurement? Cont.

- › LOM: Do you (or any members of your household) have continuous uses of a motor vehicle (examples...)?
- › Please specify why you don't go out in the motor vehicle (as much as you would like)?
- › EHSIS: What prevents you from using other forms of transport (whenever you want to)?
- › Answer categories include:
  - Financial reasons (lack of money, can't afford)
  - Difficulties getting on or off transport

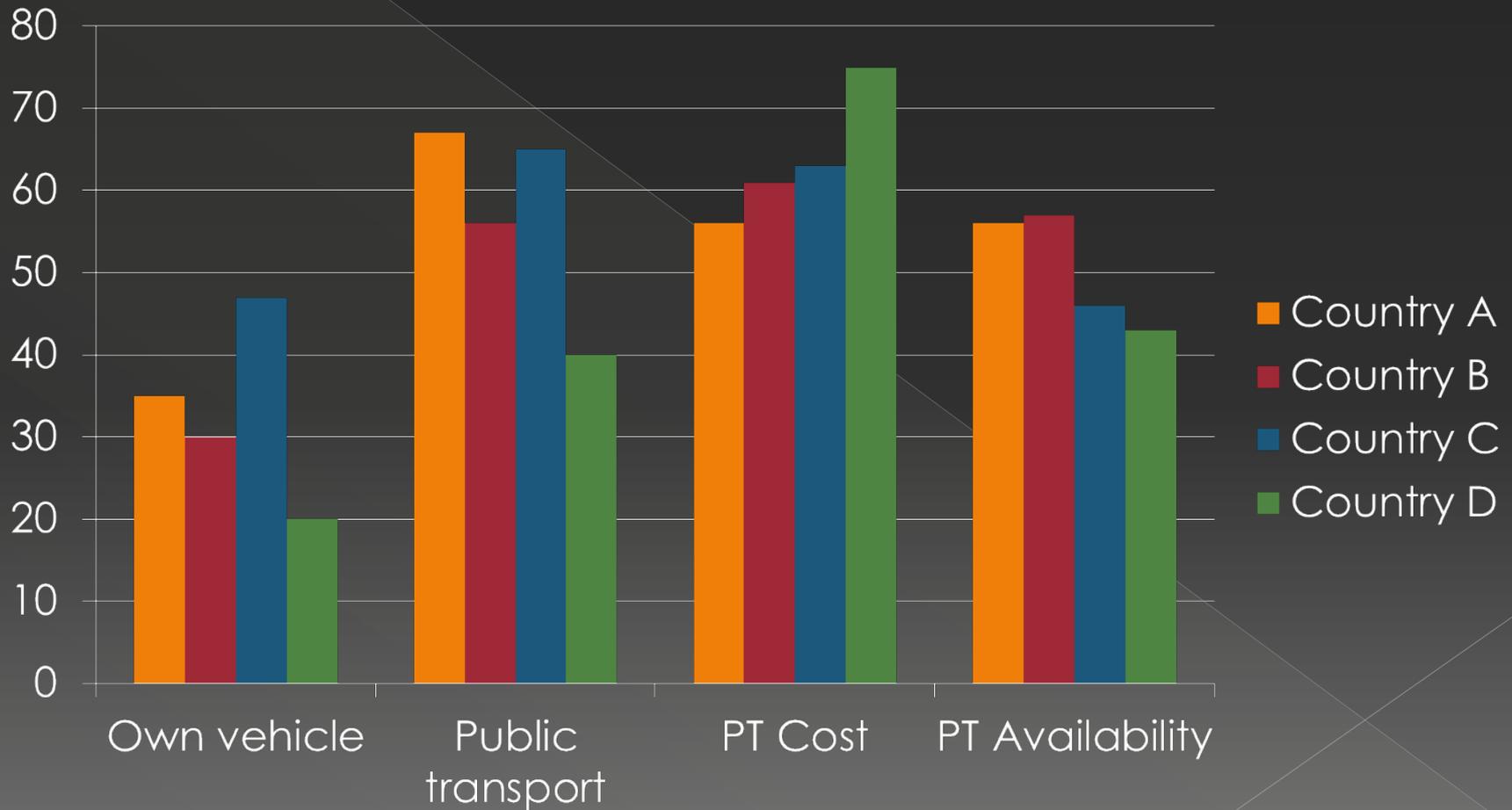
# Do Differences Preclude Cross-Cultural Measurement? Cont.

- Questions are not comparing types of buildings or types of transportation.
- Focus of questions is to identify the type of difficulty/ies the individual has with the type of buildings or forms of transportation that are available in the culture.
- Yes, different building types or different forms of transportation can impact on persons with functional difficulties differently, but don't we want to know that.
- Also, comparisons will be made with non-disabled members of the same cultures as well as across cultures.

# Hypothetical Data on Transportation Within a Country



# Hypothetical Data on Disabled Population Experience with Transportation Across Countries



# Examples of Suggested Question Set on Transportation

- Do you need transportation to get to (check all that apply)
  - > Neighbors
  - > Friends
  - > Work or school
  - > Family that live outside your home
  - > Shopping
  - > Doctors, health clinics
  - > Community centers
  - > Places of worship
  - > Recreational activities
  - > Other places\_\_\_\_\_
- Do you own and operate a car or other form of transportation?
  - > Yes
  - > No
  - > Family member does
  - > Refused
  - > Don't know

# Examples of Suggested Question Set on Transportation

- Does your community have a public transportation system?
  - > Yes
  - > No
  - > Refused
  - > Don't know
- Thinking of that public transportation system, such as buses, railways or subways, taxis; (**list transportation types appropriate to culture**) or other types of vehicles, can you use this system for your transportation needs on a regular basis?
  - > Yes
  - > No
  - > Don't use, have own private transportation (go to next section)
  - > Refused
  - > Don't know

# Examples of Suggested Question Set on Transportation

- What characteristics of the public transportation system make it useable? Mark all that apply.
  - > Low Cost
  - > Schedule frequency (regular schedule)
  - > No Steps
  - > Lighting
  - > Quiet
  - > Not too Crowded
  - > Types of Seating /special seating
  - > Little Difficulty getting to station or pick up point
  - > Other transportation related characteristics: Specify\_\_\_\_\_
- What characteristics of the public transportation system make it difficult to use? Mark all that apply.
  - > High Cost
  - > Schedule frequency (infrequent or irregular schedule)
  - > Steps
  - > Lighting
  - > Sounds/noise
  - > Too Crowded
  - > Types of Seating/special seating
  - > Difficulty getting to station or pick up point
  - > Other transportation related characteristics: Specify\_\_\_\_\_

# Safety

- ◉ An additional important area to examine when focusing on environment is safety.
- ◉ Recent disasters have shown that persons with disabilities are particularly vulnerable during a period when the normal safety net infrastructure breaks down, particularly among those who need assistance or are immobile.
- ◉ Questions about availability of a safety net in such periods would be a useful addition to any environmental measure.

# Other Areas of Possible Inclusion

- ◉ Access to the internet
- ◉ Access to services
- ◉ Areas of Discrimination

# Discussion

- ◉ Questions
- ◉ Comments and opinions

# Next Steps

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# Recommendations

- Consider a structural/descriptive approach to environmental questions.
- Consider measures that cover building accessibility for home and some elements of community buildings.
- Consider transportation as another area of measurement
- Include safety measures as well.
- What other areas need to be covered?

# Other areas of Consideration

- ◉ Do we want a short set and a longer set of environmental questions or which length if only one?
- ◉ Do we want to include a listing of assistive devices used/needed?
- ◉ Do we want to ask about need for personal assistance and the level of personal assistance?

# Further Considerations: What Can You Commit To?

- ◉ Participation in developing the questionnaire/s
- ◉ Country level participation and funding of translation and cognitive testing
- ◉ Recommendations for sources of funding for technical assistance for the cognitive testing process

# Discussion

- ◉ Questions?
- ◉ Comments?
- ◉ Decisions
  - › Continue work on an environmental measure?
  - › Identify the most important areas of environment to be included.
  - › Approximate size of environmental component
  - › What is your country going to do to contribute to this effort?