



# A Case Study: Activity and Participation Measurement in Two Subjects

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## Introduction

The measurement of activity and participation is a key area of re-search activity among people with disabilities [1]. This case study compares the differences between a self report instrument and a GPS / Prompted Recall Interview as a measure of activity and community participation in two subjects who use wheeled mobility devices.

## Methods

Research conducted at Georgia Tech between 2004 and 2006 examined the impact of power wheelchair use on activity and participation and health [2,3]. Subjects' wheelchairs were instrumented with a data logger and GPS unit for a two-week period.

### PRI

#### (Prompted Recall Interview)

- asks subjects about the activity purpose at recorded destinations, mode of travel, and travel companions.
- administered within 48 to 72 hours after chairs were de-instrumented.

### CPPRS

#### (Community Participation and Perceived Receptivity Survey)

- self-report participation measure for people with mobility disabilities.
- asks subjects about common monthly and yearly destinations.
- asks subjects about destinations they want to visit but cannot
- administered within 2 weeks after de-instrumentation.

#### For each destination CPPRS asks:

- Frequency of visits
- Mobility device used
- Overall accessibility
- Social attitudes
- Choice
- Environmental barriers and facilitators
- Assistance
- Pain and fatigue
- Transportation mode
- Importance
- Satisfaction

## Results

### Subject Descriptions

Subject A	Subject B
57 yo African-American man with quadriplegia	42 yo African-American man with quadriplegia
Uses a power tilt-in-space wheelchair (~4.5 years)	Uses a power tilt-in-space wheelchair (~3 yrs)
Lives in a multi-level, single family home with his wife and adult son; home is fully accessible	Lives alone in an accessible apartment
Neighborhood has no sidewalks; stores & services are driving distance away	Neighborhood has sidewalks and some stores within wheeling distance
Uses adapted van driven by wife or friend	Relies on Paratransit for travel outside of his immediate neighborhood

### CPPRS and PRI Trip Counts

Subject A			Subject B		
Destinations	# Trips		Destinations	# Trips	
	GPS/PRI (past 2 weeks)	CPPRS		GPS/PRI (past 2 weeks)	CPPRS
Doctor's offices	6	4/year	Doctor's offices	1	12/year
Religious Institutions	4	5/month	Family & Friends	8	4/month
Sports arenas	1	1/year	Restaurants	3	2/month
Grocery Store	1	2/month	Grocery Store	3	2/month
Shopping Malls	1	10/year	Shopping Malls	1	12/year
Large Stores	1	1/month	Public Parks	0	104/year
Restaurants	1	0/month	Pharmacies	0	2/month
Gas Station	2	0/month	DME providers	0	2/year
Work/Volunteer	1	0	Video Store	1	n/a
			"No Destination" Trips	23	n/a

## Discussion

### Differences between CPPRS & PRI

#### Subject A

- More trips to Shepherd Center from PRI indicates CPPRS category "doctors offices" does not capture full range of health services.
- PRI queried only recorded destinations. CPPRS also captured activities important to subject, but which subject could not participate (e.g., visiting family/friends).
- PRI captured destinations missed by CPPRS. (e.g., subject denied going to gas stations and restaurants in the CPPRS but PRI showed that he visited both places).
- "Volunteer" and "Work" categories may be ambiguous. PRI captured subjects volunteering activities. Subject denied volunteer activities in CPPRS.

#### Subject B

- "No destination" trips are not destination-specific, e.g., wheeling about for fun, chatting with people in the community, sitting in the sun. No equivalent CPPRS category, however, "public parks" may have captured their recreational and social nature in terms of destination.

## Conclusion

GPS/PRI methods allow researchers to accurately document activities based on objective data. They provide insight into activities, participation, wheel-chair use, and travel patterns which, in turn, help inform and refine self-report measures.

## References

1. World Health Organization (2001). ICF: International Classification of Functioning, Disability, and Health. Geneva.
2. Sonenblum, S., S. Sprigle, C. Maurer (2006). Monitoring Power Upright and Tilt-in-space Wheelchair use. RESNA, Atlanta, GA.
3. Lankton, S. et al (2004). Use of GPS and Sensor-based Instrumentation as a Supplement to Self-Report in Studies of Activity & Participation. RESNA, Atlanta, GA.

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