

# Projects

## Projects

CATOR partners have been actively collaborating in a number of Research, Development and Knowledge Translation activities since 2001. These ongoing and completed activities may be found on the following pages. Research and Development Current Funded Research & Development

- Assistive Technology Outcomes Profile/Mobility (ATOP/M)
- Assistive Technology Intervention Specification Instrument (AT-ISI)
- Impact of Assistive Technology on the User-Human Helper Dyad Completed Research & Development Knowledge Translation (Exchange) CATOR Partner Publications 2002 &ndash; 2009  
CATOR Partner Presentations 2002 &ndash; 2009  
International Exchange Research and Development Current Funded Research:

The following work is currently ongoing and supported in part by grant H133A060062 from the National Institute on Disability and Rehabilitation Research.

This work is being conducted to address the three biggest needs facing AT outcomes researchers, namely: (1) efficient capture of data regarding the impact of AT on users' activity and participation; (2) efficient, comprehensive capture of data characterizing the nature of AT treatment interventions; and (3) capture of data that reflects the impact of AT on caregivers of those with disabilities. It is anticipated that by achieving these specific aims, we will substantially improve the quality of AT outcomes research that can be conducted henceforth.

### Assistive Technology Outcomes Profile (ATOP/M)

Answering the question, Does assistive technology work? is difficult for a number of reasons. One of the most important is limitations of traditional rehabilitation functional outcome measures. These include narrowly defined functional outcomes, lack of comparability of results across instruments, and unacceptable tradeoffs between instrument precision and practical application. Additionally, they cannot be used across the variety of settings in which physical rehabilitation services are provided, and along the continuum of care. Traditional measures, therefore, are not ideal for developing outcome measures for mobility assistive technology devices (ATDs) that would advance evidence-informed practices in the field.

This project addresses the need by researching and developing an ATD outcomes instrument, based on state-of-the-science applications of item response theory (IRT) and computer adaptive testing (CAT). The instrument is tentatively named the Assistive Technology Outcomes Profile for Mobility (ATOP/M). The purpose for the ATOP is to evaluate the impact on activities, participation, satisfaction and well-being of increased mobility resulting from the use of mobility ATDs.

These areas are the ones identified in the CATOR taxonomy (Jutai et al., 2005) as representing both the subjective vantage on ATD outcomes, and a desired subjectification of ATD effectiveness as defined in the ICF framework.

The outcome of this project will be a state-of-the-science instrument for measuring outcomes for mobility assistive technology devices. The advances represented in this instrument are a clarified conceptual model and precise measurement of outcomes by adaptively administering only questions that retrieve maximum information from the device user, to minimize respondent burden. The ATOP/M will be available both in fixed length and CAT formats.

We expect that the knowledge gained from IRT-CAT instrument development and validation in this project will substantially inform follow-on work to develop similar instruments for use in the many other important areas for AT intervention, including communication, cognition, education, and vocation. Progress to date:

### Construction of the ATOP/M item pool:

A comprehensive literature review was done to identify extant instruments for measuring the content areas from which items might be selected. The methodology to be used is described in the CATOR publication by Lenker et al. (2005). The search included the published literature, as well as an environmental scan to locate unpublished instruments and tools under development. Both scientific and lay publications were synthesized that addressed: (1) stakeholders' experience with ATD outcomes and their measurement, and (2) the methods of conveyance and associated success or failure of approaches to education and training. From this synthesis, we specified the criteria for achieving an acceptable instrument and described a conceptual framework for it.

Concurrently with the literature review, we conducted focus groups with participants across two sites (Chicago, Illinois and London, Ontario) to ground item development in the perspective of people with disabilities who use mobility technology. Focus groups provide an excellent means of learning how constituents of various groups perceive and

describe a phenomenon of interest, such as mobility technology use, in their own words based on shared life experiences and a common frame of reference. Participants were selected to represent diversity in impairment and type of mobility technology used and type of disability (SCI, MS, stroke, cerebral palsy). We also sampled to draw a diverse pool within groups in relation to age (18 and older), gender, socioeconomic status, and geographic location (urban, rural). The knowledge gained from the focus groups was then translated into items within a dynamic item pool, providing a shared lexicon, or language, for describing mobility technology use and phrasing items that are relevant, meaningful and culturally grounded. A journal article presenting the findings from the focus groups has been accepted for publication.

#### Sufficiency and Understandability of Proposed ATOP/M Items:

We conducted telephone interviews with individuals who represent the ATOP/M target audience, to examine the sufficiency of the item pool and establish the cognitive characteristics of individual items. Standard pre-testing helped ensure understandable and unambiguous items. The populations included device users, ATD service providers, personal attendants or caregivers, ATD service administrators, ATD funders, and policy makers. Participants were selected to represent diversity in impairment and type of mobility ATDs used and type of disability. We also sampled to draw a diverse pool within groups in relation to age, gender, socioeconomic status, possession of sensory loss) and geographic location.

#### ATOP/M item calibration:

We hypothesize that items describing ATD impact on participation define two psychometrically sound and distinct measures, one characterized by mobility as defined in the ICF (that is, the execution of activities), and the other characterized as involvement in life situations. This phase of the project explores the appropriateness of the response format used, and assesses the potential bias of items by age, gender, educational level, and medical diagnosis of the respondent. A panel of 1037 individuals who have mobility difficulties were used to evaluate the psychometric properties of the ATOP item pool. This sample was constructed purposefully to represent groups with distinct impairment characteristics. To help ensure that estimates for item difficulty were precisely measured, the sample captured the fullest possible range of mobility impairments. The sample included persons with stroke, MS, cerebral palsy, and SCI. The age range was 18 to 105 years.

We are presently analyzing the ATOP/M data using both classical test theory and Rasch-based approaches. The purpose of this analysis is to use Rasch measurement theory to examine: (1) whether the ATOP meets suggested psychometric guidelines, (2) whether the hierarchical order of activities and participation items is consistent with a clinically logical testing procedure (i.e., moving from easy items to more difficult items, such as from the execution of activities to involvement in life situations, as defined by the ICF), and (3) whether the ATOP represents a one-dimensional construct (i.e., all items reflect a single latent trait [participation] rather than multiple constructs [activities and participation]). The major product from this phase of activity will a fixed length version of the ATOP. It will be available following publication in a peer reviewed journal.

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#### Assistive Technology Intervention Specification Instrument (AT-ISI)

Developing valid methods for measuring and classifying AT interventions, including key characteristics of both AT devices and AT services, is vital to improving the fundamental quality of AT outcomes research. To address these needs, Project R2 will develop and test the Assistive Technology Intervention Specification Instrument (AT-ISI), a tool for systematically quantifying mobility-related AT devices and services. The AT-ISI will be developed over 4 project phases:

- Achieve an operational classification of mobility-related AT devices that will support the intended uses of the AT-ISI.
- Achieve an operational classification of mobility-related AT device services to support intended uses of the AT-ISI.
- Develop v.1.0 of the AT-ISI for mobility-related devices and services.
- Establish the reliability and validity of the AT-ISI, v.1.0. Progress to date:
  - A systematic review of existing classifications of mobility devices has been completed. A manuscript summarizing the strengths & limitations of existing mobility device classifications has been submitted for publication in a peer-reviewed journal.
  - A prototype classification of mobility devices has been developed. It is currently being evaluated by a group of outside experts in order to establish its content validity. A summary of this development and testing process will be provided in a forthcoming manuscript.
  - A systematic review of existing classifications of seating & postural support devices has been completed. A manuscript summarizing the strengths & limitations of existing device classifications is in preparation.

- A prototype classification of seating & postural support devices has been developed. It is currently being evaluated by a group of outside experts in order to establish its content validity.
- A systematic review of existing classifications of seating & mobility services is underway. Subsequent to this review, we will develop and test a classification of services that builds on the strengths of existing classifications and addresses their principal limitations.

#### Project Impact:

This body of work will influence future AT research and practice in at least four ways:

- Seating & mobility device researchers will have a common terminology for reporting interventions in a manner that facilitates comparisons with other outcome studies;
- Mobility device researchers will have tools for developing AT treatment protocols and assessing the fidelity with which the protocols are administered;
- Seating and mobility clinics will have access to a set of clinician-friendly tools that facilitate systematic capture of treatment information, allowing aggregation of data to support letters of medical necessity, as well as internal program evaluation by clinic administrators; and
- Other researchers will hopefully emulate our methodology to develop versions of the AT-ISI that are appropriate for other AT device types (e.g., computer access and accommodation or augmentative and alternative communication) and associated services.

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#### Impact of Assistive Technology on the User-Human Helper Dyad

Development of an instrument to measure the impact of AT on caregivers and to apply the instrument in a single, state-of-the-art study. This project is devoted principally to testing the hypothesis that AT can substitute for human help. That assertion—a frequent justification of AT and AT services—currently rests almost entirely on evidence from studies with descriptive designs. This project uses an experimentally controlled design to examine the conditions under which a change in assistance strategy, induced by an AT Updating and Tune-Up intervention, enhances the functional performance, well-being, and device satisfaction of people with disabilities, and concomitantly decreases the assistance received from cohabitating caregivers. Progress to date:

Specifying the underlying construct: Four stages of development led to a conceptual framework for understanding assistive technology experienced by caregivers.

An important result is the identification of a complex set of variables that need to be considered when examining the experience of caregivers of AT users. Stressors, such as types of assistance, number of tasks, and physical effort, are predominant contributors to caregivers' outcomes along with caregivers' personal resources acting as intervening factors and AT acting as a potential key effect modifier factor. Recipients' use of AT can enhance caregivers well-being because of its potential for alleviating a number of stressors associated with caregiving.

Developing a prototype version of a new outcome measure of AT impacts: the Caregiver Assistive Technology Outcome Measure (CATOM).

The CATOM is an 18-item questionnaire-based instrument intended for caregivers who assist adult and older adult AT users. It is based on the conceptual model described above. It thus addresses three dimensions: i) primary stressors (areas of assistance, forms of assistance, number of caregiving tasks, time required, safety and security of tasks, and physical effort); ii) secondary stressors (role overload, elective use of time, and modified home environment), and iii) caregivers' outcomes (psychological health, physical health, and participation). The CATOM is administered in two parts. The first part (n=14 items) focuses on one activity that is considered difficult for the caregiver and for the AT user. The second part (n=4 items) refers to the overall caregiving experience. The items are rated on a 5-point ordinal scale for frequency and, if it is administered after an intervention, on a 5-point scale for perceived change. Subscores are calculated by adding the score obtained for each item of a dimension. Content validity was established through extensive review of the literature, interviews with experts and qualitative interviews with caregivers. Psychometric testing is ongoing.

Developing an AT Updating and Tune-Up intervention applicable to people living with disabilities and their caregivers in the community environment.

The specification of the intervention is based on a step-by-step process inspired by work from Roelands et al. (2004). It includes i) identification of a difficult activity by the caregiver and AT user; ii) shared exploration of useful assistance strategies; iii) choice of most suitable AT-related assistance strategy; iv) guided practice and training; v) evaluation of AT

effectiveness, and vi) cooperation with clinical partners. Objectives and modalities of intervention have been defined for each step of the intervention.

#### Assembling and testing a toolkit of outcome measures relevant for the study

The toolkit includes relevant participant-based outcome measures with emphasis placed on the caregivers's perception of outcomes, the AT users's functioning and contextual factors.

Components:

- Caregiver Assistive Technology Outcome Measure (CATOM);
- Individually Prioritized Problem Assessment (IPPA, Wessels 2002)
- Participation Survey/Mobility (PARTS/M, Gray 2006)
- Attitudes Toward Assistive Devices Scale (AADS, Roelands 2002)
- Psychosocial Impact of Assistive Devices Scale (PIADS, Day 1996)
- EuroQol (EQ-5D, Brooks 1996)
- Functional Autonomy Measurement System (Hébert, 1992)
- Mini-Mental State Evaluation (MMSE, Folstein 1975)

These tools were selected for their relevance, pragmatic aspects of administration, reliability, validity, and responsiveness to change. Their applicability and utility as a combined toolkit is actually being addressed.

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#### Completed Funded Research:

The following work was supported in part by grant H133A010401 from the National Institute on Disability and Rehabilitation Research. Bringing conceptual clarity to the field of assistive technology outcomes measurement. Key findings or discoveries:

- Conceptual framework for researching assistive technology (AT) device outcomes. (Fuhrer, M.J., Jutai, J.W., Scherer, M.J., & DeRuyter, F.: A framework for the conceptual modeling of assistive technology outcomes. *Disability and Rehabilitation*, 25, 1243-1251. 2003).
  - Provisional classification system (taxonomy) for AT device outcomes. (Jutai, J.W., Fuhrer, M.J., Demers, L., Scherer, M.J., & DeRuyter, F.: Toward a taxonomy of assistive technology device outcomes. *American Journal of Physical Medicine & Rehabilitation*, 84:294-302, 2005).
  - Framework for modelling the selection of AT devices. (Scherer, M., Jutai, J.W., Fuhrer, M., Demers, L., & DeRuyter, F.: A Framework for Modelling the Selection of Assistive Technology Devices (ATDs). *Disability and Rehabilitation: Assistive Technology*, 2(1):1-8, 2007).
  - Critical review and synthesis on the psychometric and administrative properties of outcome measures used in AT device research. (Lenker, J.A., Scherer, M.J., Fuhrer, M.J., Jutai, J.W., & DeRuyter, F.: Psychometric and administrative properties of measures used in assistive technology device outcomes research. *Assistive Technology*, 17:7-22, 2005).
- Barriers and factors contributing to assistive technology abandonment. Key findings or discoveries:
- Development of the concept of mobility devices's assistive potential and generation of findings establishing the concept's implications for mobility-device outcomes.
  - Classification of trajectories of mobility-device use following hospital discharge of medical rehabilitation patients.
  - Evidence for the validity of activity-related and psychosocial measures in predicting the use and nonuse of mobility-related devices. Improving Platforms for Acquiring AT Outcomes Data. Key findings or discoveries:
  - Development of independent tools for data capture/collection using Palm, tablet PC and Pocket PC platforms. AT instruments successfully used for proof of concept alternative data capture/collection included AT Satisfaction, Functional AAC Status, PIADS, QUEST, and ADTPA. <<Right click here and select "Save Target As..." to download the sample video>>
  - Modified commercially available technologies for alternative data capture strategies of AT outcomes data capture/collection. Successfully demonstrated proof of concept and limited beta-testing with bar coding, digital pen, IR tracking, and RFID. <<link to videos of bar coding, digital pen, IR tracking >>
  - Developed proof of concept automatic logfile performance data capture strategy using RFID to capture/collect AT outcome data. <<link to static ppt slide >>
  - Development of real-time web-based data capture/collection and reporting strategy using the AT outcome psychosocial/quality of life measure PIADS. Successfully demonstrated proof of concept, feasibility, and limited beta-testing. <<link to video>>
  - Modified real-time web-based data capture/collection and reporting strategy to operate on portable handhelds including Blackberry. Successfully demonstrated proof of concept, feasibility, and limited beta-testing. <<link to video>>

[Return to top](#) Knowledge Translation (Exchange)

CATOR's vision is to develop a systematic, integrated approach to accelerating optimal use of the best available

outcomes evidence in the interest of the health and well-being of AT users and caregivers. Using knowledge conceptually, to change understanding or attitude, is quite different from using it instrumentally, to change behavior and practice. CATOR targets its knowledge translation exchange on both forms of knowledge use. CATOR Partner Publications 2002 &ndash; 2009:2002

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- Jutai J & Day H. (2002). Psychosocial Impact of Assistive Devices Scale (PIADS). *Technology & Disability*, 14, 107-111.
- Jutai JW, DeRuyter F & Scherer M. (2002). Advancing assistive technology outcomes: the Consortium for Assistive Technology Outcomes Research (CATOR). RESNA 2002 Proceedings, RESNA Press, Arlington, VA.
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- Devitt R, Chau B & Jutai JW. (2003). The effect of wheelchair use on the quality of life of persons with Multiple Sclerosis. In: M Finlayson (Ed.), *Occupational Therapy Practice and Research with Persons with Multiple Sclerosis*. New York: Haworth Press, Inc. Pp.63-79.
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- Jutai JW & Teasell RW. (2003). The necessity and limitations of evidence-based practice in stroke rehabilitation. *Topics in Stroke Rehabilitation*, 10(1), 71-78.
- Teasell RW, Jutai JW, Bhogal SK & Foley NC. (2003). Research gaps in stroke rehabilitation. *Topics in Stroke Rehabilitation*, 9(4), 59-70.
- Wright FV, Hubbard S, Naumann S & Jutai JW. (2003). Evaluation of the validity of the prosthetic upper extremity functional index for children. *Archives of Physical Medicine & Rehabilitation*, 84(4), 518-27.

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- DeRuyter F, Caves C, Saldana D & Jutai JW. (2004). Platform Independent and Web-Based AT Outcome Data Collection Tools. RESNA 2004 Proceedings, RESNA Press, Arlington, VA.
- Jutai JW, Fuhrer MJ, Scherer MJ, DeRuyter F & Demers L. (2004). A conceptual foundation for researching assistive technology outcomes. RESNA 2004 Proceedings, RESNA Press, Arlington, VA.
- Lenker JA, Scherer MJ, Fuhrer MJ, Jutai JW & DeRuyter F. (2004). Psychometric and administrative properties of measures used in assistive technology device outcomes research. RESNA 2004 Proceedings, RESNA Press, Arlington, VA.
- Teasell RW & Jutai JW. (2004). Rehabilitation in the elderly stroke patient. *Geriatrics and Aging*. 7(8), 33-36.

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- Demers L, Jutai JW, Fuhrer MJ, Scherer M & DeRuyter F. (2005). Outcome areas that matter to users of assistive technology devices. Proceedings of the Canadian Association of Occupational Therapists Conference, Vancouver BC.
- Demers L, Jutai JW, Scherer M, Pervieux MSc & DeRuyter F. (2005). The Challenge of Locomotion Device Tracking in Longitudinal Outcome Studies. RESNA 2005 Proceedings, RESNA Press, Arlington, VA.
- Jutai JW, Fuhrer MJ, Demers L, Scherer MJ & DeRuyter F. (2005). Toward a taxonomy of assistive technology device outcomes. *American Journal of Physical Medicine & Rehabilitation*. 84(4), 294-302.
- Jutai JW, Strong G, Ariizumi H & Plotkin A. (2005). Feasibility of dynamic modeling of outcomes for low vision devices. Proceedings of the Vision2005 International Conference. London, UK.
- Lenker JA, Scherer MJ, Fuhrer MJ, Jutai JW & DeRuyter F. (2005). Psychometric and administrative properties of measures used in assistive technology device outcomes research. *Assistive Technology*, 17(1), 7-22.
- Salter K, Jutai JW, Teasell R, Foley N & Bitensky J. (2005). Issues for selection of outcome measures in stroke rehabilitation: ICF Body Functions. *Disability and Rehabilitation*. 27(4), 191-207.
- Salter K, Jutai JW, Teasell R, Foley N, Bitensky J & Bayley M. (2005). Issues for selection of outcome measures in stroke rehabilitation: ICF Activities. *Disability and Rehabilitation*. 27(6), 315-340.

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- Jutai JW, Fuhrer MJ, Demers L, Scherer M & DeRuyter F. (2006). Psychosocial impact predicts locomotion assistive technology device outcome. *RESNA 2006 Proceedings*, RESNA Press, Arlington, VA.
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- Demers L, Fuhrer MJ, Jutai JW, Lenker J, Depa M & DeRuyter F. (2009). Development of a Conceptual Framework for

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CATOR Partner Presentations 2002 &ndash; 2009:2002

- Beukelman DR, Blackstone SW, Calculator SN, DeRuyter F, Light JC, Schlosser RW & Yorkston KM. (2002). Outcomes of Augmentative and Alternative Communication Interventions. Invited instructional workshop presented to the American Speech Language and Hearing Association, Atlanta, GA
- DeRuyter F. (2002). Use of Handhelds for AT Outcome Measurement. Invited presentation to the American Speech & Hearing Association Annual Meeting, Atlanta, GA
- DeRuyter F. (2002). Activities of the Consortium for Assistive Technology Outcomes Research. Invited presentation to the Washington University, Program in Occupational Therapy, St. Louis, MO
- DeRuyter F & Jutai J.: (2002). Outcome Measurement for Assistive Technology. Invited instructional workshop presented to the 17th Annual International Conference on Technology and Persons with Disabilities. Los Angeles, CA
- DeRuyter F & Jutai JW. (2002). Outcome measurement for assistive technology. Invited Webcast sponsored by the Kornreich Technology Center, National Center for Disability Services, Albertson, NY
- Jutai JW. (2002). Measuring the psychosocial impact of assistive devices. Invited presentation to the Washington University, Program in Occupational Therapy, St. Louis, MO
- Jutai JW. (2002). Beyond "optimal" outcome measurement for assistive technology. Invited presentation to Veterans Administration Rehabilitation Research & Development National Center for Rehabilitative Auditory Research, Portland, OR
- Jutai JW, DeRuyter F & Scherer M. (2002). Advancing assistive technology outcomes: the Consortium for Assistive Technology Outcomes Research (CATOR). Invited presentation to the 2002 RESNA Conference, Minneapolis, MN
- Jutai JW, Tate DG, Elliott TR & Craddock GM. (2002). Matching consumer and assistive technology for successful rehabilitation. Invited presentation to the American Association of Spinal Cord Injury Psychologists and Social Workers, Las Vegas, NV
- Smith RO, Edyburn D, DeRuyter F, Jutai J, Scherer M & Andrich R. (2002). Assistive technology outcomes: what does it mean to me? Invited presentation to the 2002 RESNA Conference, Minneapolis, MN 2003
- DeRuyter F. (2003). Consortium for Assistive Technology Outcomes Research: An Update. Paper presented to the NIDRR Project Directors, Washington, DC
- DeRuyter F, Caves C, Saldana D & Jutai J. (2003). Platform-independent and web-based AAC outcome data collection tools. Presented to United States Society for Augmentative and Alternative Communication, Los Angeles, CA
- DeRuyter F & Jutai JW. (2003). Outcome Measurement for Assistive Technology: Moving Forward. Invited instructional workshop presented to the 18th Annual International Conference on Technology and Persons with Disabilities. Los Angeles, CA2004
- DeRuyter F. (2004). Performance Monitoring in the California Assistive Technology System. Paper presented to the California Assistive Technology System, Sacramento, CA
- DeRuyter F. (2004). Platform Independent and Web-Based AT Outcome Data Collection Tools. Paper presented at the Assistive Technology Education Conference. St. Louis, MO
- DeRuyter F. (2004). Impact of the ATA 2004 on the California Assistive Technology System Data Reporting System. Paper presented to the California Assistive Technology System, Department of Rehabilitation. Sacramento, CA
- DeRuyter F, Caves C, Saldana D & Jutai JW. (2004). Platform independent and web-based AT outcome data collection tools &ndash; An Update. Paper presented to the 19th Annual International Conference on Technology and Persons with Disabilities. Los Angeles, CA
- DeRuyter F, Caves C, Saldana D & Jutai JW. (2004). Platform independent and web-based AT outcome data collection tools &ndash; An Update. Paper presented to the RESNA &rsquo;04 Annual Conference, Orlando, FL
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- Demers L, Jutai JW, Fuhrer MJ, Scherer M & DeRuyter F. (2005). Outcome areas that matter to users of assistive technology devices. Interactive paper presented to the Canadian Association of Occupational Therapists at the 2005 Annual Conference. Vancouver BC
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- DeRuyter F, Blackstone S & Schwartz BS. (2005). Improving AAC Technologies—Projects Affecting Successful Outcomes. Presented to the California Speech and Hearing Assoc Annual Convention, Santa Clara, CA
- DeRuyter F, Jutai JW, Demers L, Fuhrer MJ & Scherer M. (2005). Advances in AT Outcomes Research. Invited Outcomes Platform Session presented to the '05 RESNA Annual Conference, Atlanta, GA
- DeRuyter F, Saldana D & Jutai JW. (2005). Platform independent and web-based AT outcome data collection tools — An Update. Paper presented to the 20th Annual International Conference on Technology and Persons with Disabilities. Los Angeles, CA
- Fuhrer MJ, Jutai JW, Scherer M, Demers L & DeRuyter F. (2005). Assistive Technology Devices for Locomotion -- Former Users—Reasons for Discontinuance as a Function of Rehabilitation Diagnosis and Device Type. Paper presented to the '05 RESNA Annual Conference, Atlanta, GA
- Jutai JW, Fuhrer MJ, Demers L, Scherer M & DeRuyter F. (2005). Conceptualization of Assistive Technology Device Intervention-Outcome Relationships. Paper presented to '05 RESNA Annual Conf, Atlanta, GA
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- DeRuyter F. (2006). Platform-Independent and Web-Based Tools for Assistive Technology Outcomes Measurement. Paper to the Joint Conference of the American Congress of Rehabilitation Medicine and American Society of Neurorehabilitation, Boston, MA
- DeRuyter F & Jutai J. AT Outcome Data Collection Tools — Platform Independent and Web-Based. (2006). Paper presented to the Assistive Technology Industry Association (ATIA) Annual Meeting, Orlando, FL
- DeRuyter F, Jutai, JW, Saldana D, Bloch E, Ghany N & Caves C. (2006). Platform-Independent and Web-based Tools for Assistive Technology Outcomes Measurement in the Home and Community. Paper presented to the International Conference on Aging, Disability and Independence (ICADI), St. Petersburg, FL
- DeRuyter F, Saldana D & Jutai JW. (2006). Assistive Technology Device Outcome Data Collection Tools. Paper presented to the '06 RESNA Annual Conference, Atlanta, GA
- Fuhrer MJ, Jutai JW, Demers L, Scherer M & DeRuyter F. (2006). Predicting the Discontinued Use of Locomotion Assistive Technology Devices: The Role of Rehabilitation Diagnosis, Device Type, and Unassisted Locomotion Status. Paper presented to the '06 RESNA Annual Conference, Atlanta, GA
- Fuhrer MJ, Jutai JW, Demers L, Scherer M, Bloch E & DeRuyter F. (2006). Effects of Type of Locomotive Device and Disabling Condition on Device Use and Disuse among Elderly Individuals Following Hospitalization. Paper presented to the International Conference on Aging, Disability and Independence (ICADI), St. Petersburg, FL
- Jutai JW, Fuhrer MJ, DeRuyter F, Demers L & Scherer M. (2006). Considerations for Conceptualizing the Study of Assistive Technology Outcomes for Persons who are Aging with a Disability. Paper presented to the International Conference on Aging, Disability and Independence (ICADI), St. Petersburg, FL
- Jutai JW, Fuhrer M, Demers L, Scherer M & DeRuyter F. (2006). Predicting Assistive Technology Device Outcomes. Paper presented to the American Congress of Rehabilitation Medicine, Boston, MA
- Jutai JW, Fuhrer MJ, Demers L, Scherer M & DeRuyter F. (2006). Psychosocial Impact Predicts Locomotion Assistive Technology Device Outcome. Paper presented to '06 RESNA Annual Conference, Atlanta, GA
- Scherer M, Jutai JW, Fuhrer MJ, Demers L & DeRuyter F. (2006). Factors Impacting Consumers—Assistive Technology Device (ATD) Selection. Paper presented to '06 RESNA Annual Conference, Atlanta, GA 2007
- Demers L, Fuhrer MJ, Azam M, Jutai JW, Lenker J & DeRuyter F. (2007). A Conceptual Framework for the Assessment of Assistive Technology Outcomes on the User-Caregiver Dyad. Paper presented to the Canadian Association of Occupational Therapists Annual Conference. St. John, Newfoundland, Canada
- Demers L, Fuhrer MJ, Jutai JW, Scherer M, Pervieux I & DeRuyter F. (2007). Tracking Mobility-Related Assistive Technology. Paper presented at the International Conference on Technology and Aging (ICTA), Toronto, Canada
- Demers L, Fuhrer MJ, Jutai JW, Lenker JA & DeRuyter F. (2007). A Framework for Evaluating Assistive Technology Outcomes on the User-Caregiver Dyad. Paper presented to the International Conference on Technology and Aging (ICTA), Toronto, Canada
- Demers L, Jutai J, Fuhrer M, Lenker J & DeRuyter F. (2007). Advancing Assistive Technology Outcomes Research in Aging. Paper presented at the International Conference on Technology and Aging (ICTA), Toronto, Canada
- DeRuyter F. (2007). Assistive Technology Outcomes and Findings. Presentation to U.S. Interagency Committee on Disability Research conference on "Transfer Strategies and Technologies for Individuals with Physical Disabilities". Arlington, VA
- DeRuyter F & Jutai JW. (2007). AT Outcome Data Collection Tools: Platform Independent and Web-Based. Paper presented to the 22nd International Conference on Technology and Persons with Disabilities, Los Angeles, CA
- DeRuyter F, Jutai J & Saldana D. (2007). AAC/AT Outcome Data Collection/Capture Tools: Platform Independent and Web-based. Presentation to the American Speech and Hearing Association, Boston, MA
- DeRuyter F, Saldana D & Jutai JW. (2007). Handhelds as Alternative Outcome Data Capture Tools. Paper presented to the '07 RESNA Annual Conference, Phoenix, AZ
- Fitzgerald S & Lenker JA. 2007. How do our services measure up? Effective measurement in technology provision. Pre-Conference Workshop. International Seating Symposium. Orlando, FL
- Jutai J, Day H, Coulson S, Demers L, Fuhrer M, Lenker J & DeRuyter F. (2007). Developing a Short Form of the

Psychosocial Impact of Assistive Devices Scale (PIADS). Paper presented to the '07 RESNA Annual Conference, Phoenix, AZ

- Lenker JA. (2007). Learning the tools of the trade: Fundamental considerations for conducting assistive technology outcomes research. Workshop conducted at New York Occupational Therapy Association Annual Conference. Buffalo, NY.
- Lenker JA. (2007). It's not rocket science! Turning your good ideas into viable clinical research topics. International Seating Symposium. Orlando, FL. 2008
- Auger C, Demers L, Gélinas I, Jutai JW, Fuhrer MJ & DeRuyter F. (2008). Effectiveness, Social Significance and Well-Being Following Power Mobility Device Utilization by Middle-aged and Older Adults. Invited presentation to the International Conference on Aging, Disability and Independence, St. Petersburg, FL (2008).
- Auger C, Demers L, Gélinas I, Jutai JW, Fuhrer MJ & DeRuyter F. (2008). Que savons-nous des effets des aides à la mobilité motorisées chez les aînés? Recueil en ligne du 5e Colloque Québécois Positionnement et Mobilité, Ste-Hyacinthe, QC.
- Auger C, Demers L, Gélinas I, Depa M, Jutai JW, Fuhrer MJ & DeRuyter F. (2008). Systematic review of the outcomes of power mobility devices for middle-aged and older adults. Abrégés des affiches présentées par les étudiants du Réseau provincial de recherche en adaptation-réadaptation, Montréal, QC.
- Coulson S, Jutai JW, Demers L, DeRuyter F, Fuhrer MJ & Coster W. (2008). Functional recovery and mobility device use within a general rehabilitation population. Paper presented to the American Congress of Rehabilitation Medicine, Toronto, Canada
- Coulson S, Jutai JW, Demers L, DeRuyter F, Fuhrer MJ & Coster W. (2008). Mobility device use and functional recovery for persons receiving rehabilitation services. Paper presented to the GTA Rehab Network Best Practices Day, Toronto, Canada
- Demers L, Fuhrer MJ, Jutai JW, Lenker J & DeRuyter F. (2008). Impacts of the User-Caregiver Dyad on Assistive Technology Outcomes. Invited presentation to International Conference on Aging, Disability and Independence, St Petersburg, FL
- DeRuyter F, Jutai JW, Fuhrer M, Demers L & Lenker J. (2008). Instrumentation for AT Outcomes Data Capture and Management in the Field. Invited presentation to International Conference on Aging, Disability and Independence, St Petersburg, FL
- DeRuyter F. (2008). Augmentative Communication Technology Advancements. Invited presentation to the International Conference on Aging, Disability and Independence, St. Petersburg, FL
- DeRuyter F, Jutai JW & Saldana D. (2008). AAC/AT Outcomes Research and Data Capture Tools. Invited presentation to the 23rd International Conference on Technology and Persons with Disabilities, Los Angeles, CA
- DeRuyter F, Jutai J & Saldana D. (2008). AAC Outcomes Research and Data Capture Tools. Paper presented to the International Society for Augmentative and Alternative Communication Biennial Conference, Montreal, Canada
- Jutai JW, Coulson S, Fuhrer MJ, Demers L & DeRuyter F. (2008). Predicting Assistive Technology Device Continuance and Abandonment. Paper presented to the American Congress of Rehabilitation Medicine, Toronto, Canada
- Jutai JW, Fuhrer MJ, DeRuyter F, Demers L & Lenker J. (2008). Self-report Outcome Measures for Mobility Assistive Devices: The Next Generation. Invited presentation to International Conference on Aging, Disability and Independence, St Petersburg, FL
- Lenker JA. (2008). Measuring interventions in AT service delivery practice: Development of the AT-ISI. Presentation at AAATE 2008: Socio-economic assessment of assistive technology in service delivery practice. Milano, Italy.
- Lenker JA. (2008). Specifying Specification & Treatment Theory in AT Outcomes Research. Pre-Conference Instructional Course RESNA '08 Annual Conference, Arlington, VA
- Lenker JA, Fuhrer MJ, Jutai JW, Demers L & DeRuyter F. (2008). The Imperative for Intervention Specification in AT Outcomes Research. Invited presentation to the International Conference on Aging, Disability, and Independence. St. Petersburg, FL.
- Shoemaker LL, Lenker JA, Fuhrer MJ, Jutai JW, Demers L & DeRuyter F. (2008). How well do extant classifications of mobility-related assistive devices support outcomes researchers? Presentation at the 2008 ACRM-ASNR Joint Educational Conference in Conjunction with ORRAN. Toronto, Canada 2009
- Auger C, Demers L, Gélinas I, Routhier F, Jutai J, Guérette C & DeRuyter F. (2009). Utility of the "Life-Space Assessment" for Power Mobility Device Users. Paper presented to the Canadian Association of Occupational Therapists, Ottawa, Canada
- DeRuyter F, Fuhrer MJ, Demers L, Lenker J & Jutai JW. (2009). Outcome Data Capture, Management and Reporting Tools. Paper presented to the '09 RESNA Annual Conference, New Orleans, LA
- Jutai JW, Fuhrer MJ, Demers L & DeRuyter F. (2009). Prospective Study of Mobility Assistive Device Utilization by Persons Who Received Inpatient Rehabilitation Services. Paper presented to the '09 RESNA Annual Conference, New Orleans, LA
- Jutai JW, Demers L, DeRuyter F, Finlayson M, Fuhrer MJ, Hammel J & Lenker J. (2009). Assistive Technology Outcomes Profile for Mobility (ATOP/M) - Item Pool Development. Paper presented to the '09 RESNA Annual Conference, New Orleans, LA
- Shoemaker LL & Lenker JA. (2009). Development and testing of a new tool to capture mobility device interventions. Paper presented to the 25th International Seating Symposium. Orlando, FL

CATOR principals provided leadership for establishing the International Network of Collaborators in Assistive Technology Outcomes Research (INicator). Its membership includes representatives from international associations for advancing AT outcomes (RESNA, RESIA, AAATE). The mission of INicator is to establish international guidelines and standards for the translation and validation of AT outcome measures as well as to develop a core set of international outcome measures for AT. Represented countries and other entities currently active in translation projects include Canada, Israel, Italy, Korea, Portugal, Puerto Rico, Japan, Spain, Sweden, Taiwan, United Kingdom, and the United States. <<link to project update info>>

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