

Bacon, D. (2006) **Hands-on parenting: A resource guide for parents who are blind or partially sighted.** NARIC Accession Number: O16946. Project Number: H133A040001.

Abstract: This resource guide provides ideas and suggestions for dealing with concerns and issues experienced by parents who are blind or partially sighted. The information was generated and compiled from ongoing discussions among parents with visual impairments. Topics include pregnancy and childbirth, caring for a newborn, caring for a sick child, parent-child interactions, feeding, organizing clothing, dental care, toilet training, transportation and traveling with children, monitoring a child in new environments, social issues, family roles, education children, and toys and games.

Frank, J. (2006) **A guide to using the accommodation request process of the Americans with Disabilities Act for people who are blind or who have low vision.** NARIC Accession Number: O16765. Project Number: H133B010101.

Abstract: Handbook provides guidance on requesting a job accommodation under the Americans with Disabilities Act (ADA) for people who are blind or have severe visual impairments. It is based on the experiences of people who are blind or have low vision who responded to a survey about the ADA process. It includes their suggestions on how to successfully request reasonable accommodations.

**This document is available online at [naric.com](http://naric.com)**

Moore, E., Steinman, B. (2006) **Functional outcomes and consumer satisfaction in the independent living program for older individuals who are blind.** *Journal of Visual Impairment & Blindness*, 100(5), 285-294. NARIC Accession Number: J50785. Project Number: H133B010101.

Abstract: Article presents the results of a national survey of consumers served by the Independent Living Program for Older Individuals Who Are Blind. Overall, the findings indicated that participants were highly satisfied with the quality and timeliness of the services and assistance they received in achieving independent living goals. There was a slight increase in perceived functional outcomes from 1999 to 2004. Participants perceived the improvements in their functional outcomes and satisfaction with services to be higher when the onset of their visual impairment occurred at an earlier age.

Rimmer, J. (2006) **Building inclusive physical activity communities for people with vision loss.** *Journal of Visual Impairment & Blindness*, 100(Special Supplement), 863-865. NARIC Accession Number: J52030. Project Number: H133E020715.

Abstract: Article provides an overview of major areas that should be addressed in order to improve access to various physical activity venues for people with vision loss. Issues concerning the accessibility of the physical (built) environment, exercise equipment, group exercise classes, and commercial and print media are discussed.

Strobel, W., Fossa, J. (2006) **Technology for access to text and graphics for people with visual impairments and blindness in vocational settings.** *Journal of Vocational Rehabilitation*, 24(2), 87-95. NARIC Accession Number: J50602. Project Number: H133E030025.

Abstract: Article reviews the need for accommodations and emerging technologies in the employment of people with visual impairments. The status of current technology providing access to text and graphics, including portable optical character recognition, Braille display technologies, and universal translators for Internet documents is discussed.

Wagner, J., Vanderheiden, G. (2006) **Improving the usability of a mainstream cell phone for individuals with low vision.** *Journal of Visual Impairment & Blindness*, 100(11), 676-686. NARIC Accession Number: J51788. Project Number: H133E990006.

Abstract: Article describes a method for improving the usability of a mainstream cell phone for people with low vision by providing a way to display the text of the keys in large print on the phone's screen. Two enlarging techniques (suspend and display, and delay and display) were developed and the program were loaded into the cell phone. Testing evaluated dialing accuracy and the amount of time required to complete the dialing task. Results showed a significant improvement in dialing accuracy after the introduction of the enlarging techniques; however, the time to complete the dialing task did not change significantly.

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**Visual Impairments**  
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## NIDRR Grantees on the Cutting Edge

**Accessible Location Information Delivered via GPS Cell Phone for People with Visual Impairments** *Sendero Group, LLC* (H133G060035) led by Michael May. Thomas Corfman, Project Officer.

Abstract: This project develops an accessible GPS cell phone, which provides critical information about businesses, addresses, distances, and routes, thereby greatly augmenting the personal mobility of a traveler who is blind or visually impaired. Specific activities include integrating the existing accessible GPS innovations with "smart" cell phone technology. Developing an interface to meet the needs of the nation's blind and visually impaired travelers, i.e. translating the visual information into spoken text, is a central focus of this project. The end result of this project is to provide a commercially available talking GPS cell phone.

Find out more at: [www.wayfinding.org](http://www.wayfinding.org)

**Rehabilitation Engineering Research Center: Develop and Evaluate Technology for Low Vision, Blindness, and Multi-Sensory Loss** *The Smith-Kettlewell Eye Research Institute* (H133E060001) led by John A. Brabyn, PhD. Kenneth D. Wood, PhD, Project Officer.

Abstract: This Center conducts a program of research and development to enhance the independence of blind, visually impaired, and deaf-blind individuals. Research includes investigation of assessment methods to guide rehabilitation of infant cortical visual impairment; practical innovations in assessment and interventions for elders with visual impairments; and development of independent assessment guidelines for emerging visual prostheses. The Center also conducts research in access to graphical information for blind, visually impaired, and deaf-blind persons, developing tools for rapid screen overview, auditory and tactile graph presentation, image classification, and on-demand production of tactile street maps. To address signage and travel information, the project is investigating information interfaces for travelers who are blind or visually impaired, and innovative computer vision methods to find and read existing print signs and labels. To address the rising barriers to accessing visual displays and appliances for employment and daily living, there is a designer education campaign and development of a universal talking LCD/LED display reader, practical consumer tools, and jobsite adaptations for employees who are blind or visually impaired. Other projects include development of a new-generation robotic finger-spelling hand for deaf-blind communication, and pilot investigations of difficulties in lipreading and sign language reading experienced by those with combined auditory and visual impairment.

Find out more at: [www.ski.org/Rehab](http://www.ski.org/Rehab)

In the 2006 American Community Survey, "7.8 million people (3.4 percent) [aged 15 and older] had difficulty seeing words or letters in ordinary newspaper print, and 1.8 million of these people reported being unable to see." The median monthly income for people with visual impairments was just under \$2,000.

*Source: Current Population Reports, December 2008. Americans with Disabilities 2005: Household Economic Studies. US Census Bureau.*

*Please note: These abstracts have been modified. Full, unedited abstracts, as well as any available REHABDATA citations, are available at [naric.com](http://naric.com).*

**Thousands of additional resources on these topics are available from NARIC's resource pages at [www.naric.com/public](http://www.naric.com/public)**

NIDRR research in blindness and visual impairments crosses each of the NIDRR Priorities. The projects and abstracts presented here are a cross-section of these research activities.

SKI and Dr. Brabyn also manage a Disability and Rehabilitation Research Project: **Fundamental Issues in Wayfinding Technologies** (H133A060056). This project conducts a broad spectrum of research to strengthen the foundations of wayfinding technology for assisting blind and visually impaired individuals to travel safely and independently. By pursuing answers to fundamental questions about wayfinding and technology, rather than adding more technology-driven devices to the existing selection, this research improves understanding about the efficacy and optimal applications of navigation and travel technologies and techniques. This provides a research-based foundation to inform and improve: (1) orientation and mobility instructional strategies; (2) the design of new wayfinding technologies; and (3) future research.

Find out more at: [http://www.ski.org/Rehab/JABrabyn\\_lab/General/wayfinding.html](http://www.ski.org/Rehab/JABrabyn_lab/General/wayfinding.html)

### **Vocational Rehabilitation: Transition Services that Lead to Competitive Employment Outcomes for Transition-Age Individuals with Blindness or Other Visual Impairments**

*Mississippi State University* (H133A070001) led by Brenda Cavanaugh. Joseph DePhillips, Project Officer.

Abstract: This project conducts scientifically based research on transition services that lead to competitive employment outcomes for transition-age individuals with blindness or other visual impairments. The project includes four major research projects and a plan of dissemination. Project 1 involves conducting an integrative (systematic) literature review to identify and synthesize research on services leading to successful employment and other postsecondary outcomes for blind youth. Project 2 includes analysis of five national, cross-sectional, and longitudinal data sources to explore relationships between potential causes or influencing factors and positive transition outcomes of youth who are blind or visually impaired. Project 3 uses qualitative and quantitative methods in the collection of data from a variety of sources. The research identifies factors that impact the employment status of transition-age youth. Project 4 involves using knowledge gained from Projects 1-3 to identify and develop, demonstrate, and evaluate the effectiveness of two interventions—one targeting youth who are preparing to transition from high school to employment or college and the other targeting youth who are preparing to transition from college to employment.

Find out more at: [www.blind.msstate.edu](http://www.blind.msstate.edu)

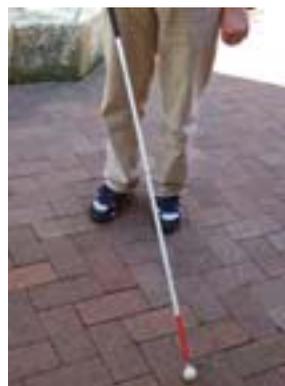
### **Universal Design of Tactile Exhibits with Touch Activated Descriptive Audio for Aquariums** *RAF Models & Displays* (H133G060284) led by Rebecca Fuller. Thomas Corfman, Project Officer.

Abstract: The purpose of this project is to develop strategies and technologies that enhance the learning opportunities at aquariums for people who are blind or low vision (B/LV). The project evaluates current aquarium exhibit strategies related to an interpretive program and assesses barriers for people who are B/LV that functionally limit their participation in the critical learning opportunities extended to the general public. The project identifies and develops universal design best practice strategies and methodologies that enhance social integration and access to exhibit and interpretive information for persons who are B/LV. The project develops cost effective technologies to couple a user-directed tactile experience with audio descriptive information for aquarium exhibits. The project emphasizes methodologies that emphasize user involvement by persons who are B/LV in the design and evaluation of prototypical designs for aquariums.

### **Micromachined Braille Reader** *North Carolina State University* (H133G070135) led by Paul D. Franzon. Joseph A. DePhillips, Project Officer.

Abstract: This project develops a low-cost, portable Braille display utilizing Polyvinylidene Fluoride (PVDF), an electro-active polymer, to create a novel, low-power, low-voltage bistable actuator. The

Photo credit: Adrian van Leen, Australia



The White Cane has come to symbolize independence for people who are blind or have visual impairments. While canes and sticks have been used for centuries, the white cane didn't become popular until the 1930s. On October 6th, 1964,

Congress and President Johnson declared October 15th as White Cane Safety Day. For more on the history of the White Cane visit <http://www.acb.org/pedestrian/whitecane.html> and [www.nfb.org/nfb/White\\_Cane\\_Safety\\_Day.asp?SnID=4](http://www.nfb.org/nfb/White_Cane_Safety_Day.asp?SnID=4)

### **Where Can I Find More?**

A quick keyword search is all you need to connect to a wealth of disability and rehabilitation research. NARIC's databases hold more than 75,000 resources. Visit [www.naric.com/research](http://www.naric.com/research) to search for literature, current and past research projects, and organizations and agencies in the US and abroad.



The Cochrane Collaboration includes a group focused on "Eyes and Vision." Their reviews range from surgical interventions to radiation therapy to technology. Visit [www.thecochranelibrary.org](http://www.thecochranelibrary.org) and scroll through the review groups to review these and other systematic reviews.

dots in this display are produced with more force and are easier to read. By using PVDF and silicon micromachining techniques, there is the potential for each Braille cell to cost \$5 or less, as compared to about \$35 for the current commercial offerings. This display should use less power, be cheaper to make, require a lower actuation voltage (thus reducing the size and cost of the control electronics), and be easier to scale to more letters than other current prototypes.

### **Low Vision Lime: Solution for Low Vision Musicians to Read, Perform, Write, and Print Music Notation** *Dancing Dots Braille Music Technology, L.P.* (H133S070089) led by William McCann. Delores Watkins, Project Officer.

Abstract: This project evaluates and defines the Lime notation software, a self-contained, music reading and writing system that allows low vision musicians to read/perform and write/revise notation, including accessible editing and printing. Specifically, the system allows for magnification that is up to 10 times the original image; displays magnified notation on a flat-panel monitor mounted on a music stand using a combination of automatic and user-controlled scrolling; adds specialized magnification of music notation, a custom scrolling mode, user control of colors and contrast; integrates a touch tablet and stylus of manual markup; and expands the implementation of MusicXML import/export to facilitate exchange with commercial notation software.

Find out more at: [www.dancingdots.com](http://www.dancingdots.com)

## **Current Literature - Selections from REHABDATA**

Capella-McDonnall, M. (2007) **Effectiveness of the ticket to work program for beneficiaries who are blind or have low vision: Comparisons with other beneficiaries.** *Journal of Visual Impairment & Blindness*, 101(5), 296-300. [NARIC Accession Number: J52602](http://www.naric.org/AccessionNumber/J52602). Project Number: H133A020701.

Abstract: Study examined the effectiveness of the Ticket to Work program for beneficiaries who are blind or have low vision by comparing their use of tickets and preliminary outcomes with those of beneficiaries with other disabilities. An unexpected finding was that beneficiaries who were blind or had low vision were more likely to assign their tickets, with those who are blind approximately twice as likely as other beneficiaries to assign tickets. Beneficiaries who were blind or had low vision were substantially less likely than were beneficiaries with other disabilities to assign their tickets to employment networks rather than to a vocational rehabilitation agency, and were less likely to be employed at an earnings level that was high enough to stop cash benefits.

Ponchillia, P., Rak, E. (2007) **Accessible GPS: Reorientation and target location among users with visual impairments.** *Journal of Visual Impairment & Blindness*, 101(7), 389-401. [NARIC Accession Number: J53107](http://www.naric.org/AccessionNumber/J53107). Project Number: H133A011903.

Abstract: Two experiments were conducted to determine consumers' ability to use a BrailleNote GPS (global positioning system). In Experiment 1, after being disoriented, 3 participants with varying degrees of visual impairment located a target house in a residential neighborhood, with the GPS and without it. Mean orientation time with the BrailleNote was 45 seconds compared to 6 minutes without it, and target efficiency increased fourfold. Experiment 2 had one participant locating 5 target houses within a familiar residential neighborhood with the BrailleNote and without it. The resulting higher efficiency in locating the targets with the GPS than without it demonstrated the advantage of GPS technology even in familiar areas. Implications of the findings for consumers and the instructional community are discussed.