

NIDRR Projects

Research in the New Millennium

Wayfinding Technologies for People with Visual Impairments: Research and Development of an Integrated Platform, Sendero Group, LLC (H133A011903) led by Michael May, Richard Johnson, EdD, Project Officer.

Abstract: This project develops a hardware and software platform that provides accessible location and navigation information for people who are blind or who have visual impairments who are traveling in indoor and outdoor environments. Development activities focus on creating an effective user interface and developing a common hardware and software platform that exploits the Global Positioning System (GPS) and other current and emerging navigation technologies.

Find out more at: www.senderogroup.com

Smith-Kettlewell Rehabilitation Engineering Research Center, Smith-Kettlewell Eye Research Institute (H133E001002) led by John A. Brabyn, PhD, Richard Johnson, EdD, Project Officer.

Abstract: This RERC conducts research and development for persons who are blind or who have visual impairments. For infants, the project explores a new objective means of identifying and differentiating vision and cognitive impairments using visually-evoked potentials, facilitating the design of optimal rehabilitation plans for each child. For individuals who have co-existing disabilities, the project explores new solutions for wheelchair travel and various technologies for wayfinding. For the older age group, the project explores practical tools allowing lay personnel to screen and assess visual impairments affecting problems unique to this age group. For consumers who are deaf-blind, the project develops a new generation of communication devices to expand the functions performed by existing products.

Find out more at: www.ski.org/Rehab

The Development of a Tool to Enhance Communications Between Blind and Sighted Mathematicians, Students, and Teachers: A Global Translation Appliance, University of South Florida (H133G010046) led by Arthur I. Karshmer, PhD, Richard Johnson, EdD, Project Officer.

Abstract: This project builds a translator for several mark-up notations used in scientific, mathematic, engineering, and technological fields. The primary difficulty encountered by students with visual impairments in pursuing studies in science, mathematics, engineering, or technology is how to read and write mathematics. The new tool allows free conversion among the several codes by developing a common intermediate format (CIF) for representing mathematics, and uses logic programming and denotational semantics to translate between supported notations and the CIF. The CIF is also used to develop a mark-up notation independent auditory browser for the understanding of complex mathematical expressions by users with visual impairments.

Model Distance-Learning Computer Training Program for Blind and Visually Impaired Individuals, Iowa Department for the Blind (H133A010104) led by Kent A. Farver, Joyce Y. Caldwell, Project Officer.

Abstract: This project creates a model distance-learning program that delivers computer training to people who are blind or who have visual impairments. The purpose of this program is to increase educational opportunities and employability in the information technology (IT) field. Project objectives include developing a model distance-learning computer training program for people who are blind and VR professionals; training and preparing 150 individuals who are blind or who have visual impairments for Microsoft Office certification and thus prepare them for entry-level IT positions; and training 50 people who are blind and VR professionals to provide computer training to job seekers who are blind.

Find out more at: www.blind.state.ia.us/assist

RRTC on Improving Vocational Rehabilitation Services for Individuals Who Are Blind or Have Severe Visual Impairments,

Mississippi State University (H133B010101) led by J. Elton Moore, EdD, Delores Watkins, Project Officer.

Abstract: This program includes a variety of research and training activities that focus on improving VR services for individuals who are blind or have severe visual impairments. Activities include: (1) investigating the impact of changes in disability and employment legislation on the unique employment-related needs of the target population; (2)

analyzing existent state and federal data sets to determine different employment outcomes and the relationship of the outcomes to client and service provider characteristics; (3) documenting how state VR agencies, other public agencies, and private service providers overcome environmental barriers in order to improve employment outcomes; (4) developing a national information and resource referral database for the training needs of state business enterprise program facilities, developing and delivering training programs to meet the identified training needs, and developing measures that can be used to evaluate the efficacy of the training; and (5) conducting conferences to train VR staff on state-of-the-art IT for individuals who are blind or have visual impairments.

Find out more at: www.blind.msstate.edu

Evaluating Independent Living Outcomes for Blind and Visually Impaired Older People: Development of a Nationally Standardized Minimum Dataset (NSMD), American Foundation for the Blind (H133G010183) led by Corinne Kirchner, PhD and Alberta L. Orr, MSW, Bonnie Gracer, Project Officer.

Abstract: This project develops and pilot tests a Nationally Standardized Minimum Dataset (NSMD), through which research can be conducted on the outcomes of services for older persons with visual impairments. The NSMD is piloted in several agencies throughout the country and includes: (1) pre-service consumer data, (2) a post-service consumer profile, (3) a functional outcomes assessment, and (4) a consumer satisfaction and perceived outcome survey.

Find out more at: www.afb.org

RehabWire for August features current research on blindness and visual impairments and the services and technology developed to meet the needs of this population.

Selections from REHABDATA

Warnecke, P. (2003) **A caregiver's eye on elders with low vision.**

Caring, 22(1), 12-15. Accession Number: J44893.

Abstract: Article discusses how home health providers and other caregivers can help older adults with low vision continue to function at their maximal level. Adaptive devices and strategies for enlarging an item, controlling lighting effectively, enhancing the contrast of objects, and the use of non-optical devices are discussed.

Sforza, C., Eid, L., Michielon, G., Fragnito, N., Ferrario, V. F. (2003) **Sensorial afferents, expectations, and craniocervical postural relations in adults who are blind and sighted.** *Journal of Visual Impairment and Blindness*, 97(1), 17-27. Accession Number: J44912.

Abstract: Study examines the impact of different internal and external influences on the normal head and neck positions in adults who are blind and sighted. Data were obtained while the subjects maintained four positions: rest, centric occlusion, mirror, and sound. Results showed that at rest, blind subjects have more flexed necks and heads than do sighted subjects. The centric occlusion position was accompanied by head extension in both groups, neck extension in the blind subjects, and neck flexion in the sighted subjects. In the mirror trial, blind subjects extended their necks, but no modifications were observed for the sighted subjects. In the sound trial, both groups flexed their necks.

Moore, J. E. (2003) **Using program evaluation to improve service delivery for older individuals who are blind.** *Journal of Visual Impairment and Blindness*, 97(1), 42-45. Accession Number: J44915.

Abstract: Author uses results from ongoing evaluations to offer suggestions for improving independent living programs delivery for older adults who are blind. Recommendations regarding service delivery, policies and procedures, staff training, fiscal policies, and audit issues are offered.

Zebehazy, K., Whitten, E. (2003) **Collaboration between special schools and local education agencies: A progress report.** *Journal of Visual Impairment and Blindness*, 97(2), 73-84. Accession Number: J44916.

Abstract: Paper describes the types of service offered by schools for students who are visually impaired (special schools) to students in local education agencies (LEAs). A survey was conducted to determine the level of collaboration between special schools and LEAs and the problems that need to be addressed to increase the effectiveness of services. Most of the schools reported serving equally as special schools and as outreach service providers to LEAs. The majority of respondents thought that collaboration and follow-up are important and considered their current level of collaboration with LEAs to be good. Areas for improvement included the need for better follow-ups, better understanding by

LEAs of services offered by special schools, less territorialism in servicing students, more in-person contacts, and better resource sharing.

Landau, S., Russell, M., Gourgey, K., Erin, J. N., Cowan, J. (2003) **Use of the talking tactile tablet in mathematics testing.** *Journal of Visual Impairment and Blindness*, 97(2), 85-96. Accession Number: J44917.

Abstract: Study evaluates a system for administering multiple-choice math tests to students who are visually impaired. The Talking Tactile Tablet (TTT), a new audio-tactile computer peripheral device, allows users learn more about graphic diagrams by pressing on them to hear appropriate audio descriptions. Participants' performance on math tests using their preferred standard accommodation was compared to results using the TTT. On the majority of items, participants performed better when using the TTT than when using their current accommodations.

(2003) **The NFB's 2003 legislative fact sheets.** *Braille Monitor*, 46(3), 184-191. Accession Number: J45065.

Abstract: Fact sheets outline three areas to be addressed in the first session of the 108th Congress: (1) access to printed instruction materials to ensure that no blind child is left behind in school, (2) access to training services and prescription drug information to support independent living for older adults who are blind, and (3) removal of the Social Security earnings penalty placed on individuals who work and are blind. Includes discussion of existing law and proposed legislation for each of these issues.

Houtenville, A. J. (2003) **A comparison of the economic status of working-age persons with visual impairments and those of other groups.** *Journal of Visual Impairment and Blindness*, 97(3), 133-148. Accession Number: J45074.

Abstract: Study shows that the employment rates and mean household incomes were lower and the receipt of Social Security Disability Insurance was higher among individuals who were blind in both eyes compared to those with less-severe impairments and those who were deaf in both ears. The concept of impairment and disability, government disability programs, data issues, and results of previous studies are discussed.

Lewis, S., Corn, A. L., Erin, J. N., Holbrook, M. C. (2003) **Strategies used by visually impaired teachers of students with visual impairments to manage the visual demands of their professional role.** *Journal of Visual Impairment and Blindness*, 97(3), 157-168. Accession Number: J45076.

Abstract: Visually impaired teachers of students with visual impairments were interviewed and observed to determine the strategies they use to address issues of transportation, access to information, assessment, and instructional responsibilities. Results indicated that transportation and planning presented the greatest challenges. The strategies used to manage these challenges were simple and inexpensive.

Harrison, J. R., Cooch, C. G., Alsup, J. (2003) **Using distance education for families to improve children's Braille literacy.** *Journal of Visual Impairment and Blindness*, 97(3), 169-172. Accession Number: J45077.

Abstract: Study examines the effects of Braille instruction on the families and instructional assistants of students with visual impairments. Videoteleconferencing was used to present the course in reading and writing Braille, using Braille resources, and viewing technology. Results indicate that participants experienced a strong positive change in their perception of the effectiveness of Braille instruction. Also, the children's motivational levels increase during the Braille sessions.

September 14th to 20th
marks National Rehabilitation
Week. Visit the
National Rehabilitation
Awareness Foundation for
more information:
www.nraf-awareness.org

