American Foundation for the Blind

Public Policy Center

1660 L Street NW, Suite 513

Washington, DC 20036

October X, 2014

Commissioner Joan McLaughlin

National Center for Special Education Research

Institute of Education Sciences

United States Department of Education

555 New Jersey Ave., NW

Washington, DC 20208

Commissioner Thomas Brock

National Center for Education Research

Institute of Education Sciences

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555 New Jersey Ave., NW

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DRAFT

Dear Commissioners,

Professionals in the fields of blindness and deaf-blindness advocacy and research are submitting the attached letter in response to your request for feedback on the focus and work of the Institute of Education Sciences’ research centers.

If you have questions or would like to follow up in response to our letter, please contact me at the address below. We look forward to continued collaboration.

Sincerely,

Rebecca Sheffield

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American Foundation for the Blind

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Dear Commissioners,

We are submitting this letter in response to your request for feedback on the focus and work of the Institute of Education Sciences’ research centers. Thank you for this opportunity. We are concerned teachers, students, and advocates from the fields of blindness/visual impairment (BVI) and deaf-blindness (DB), and in collaboration with the American Foundation for the Blind, we are pleased to provide the following responses to IES’s questions.

***Summary of recommendations:***

* Given that few BVI and DB research proposals, particularly university-based proposals, have been funded by IES in recent years, IES should collaborate with the fields and consider ways to identify and remove barriers and to improve the alignment between IES’s research goals and the urgent research needs for students with BVI and DB.
* NCSER should establish targeted training and supports for low-incidence/sensory disability research. Low-incidence studies require unique research strategies, often including qualitative and/or single-subject designs. With assistance and collaboration, researchers in our fields can be better prepared to write successful proposals to address IES priorities.
* IES should evaluate the extent to which all panel reviewers of BVI and DB proposals are aware of the unique population characteristics and research approaches associated with low-incidence and sensory disability studies. Characteristics of our student populations (such as low-incidence and high coincidence of additional disabilities) should not negatively impact researchers’ opportunities for funding.
* Research is urgently needed to address the diverse and changing nature of the fields of BVI and DB. The population of students with BVI and DB includes students with a range of visual acuities, including students with low vision who have specific needs related to low vision devices, literacy, technology, and social supports. We must have research to understand and improve these students' access to education. Additionally, the BVI and DB fields increasingly serve students with additional disabilities whose unique learning needs require specialized personnel, tools, and teaching methods. At the same time, braille instruction must change at the K-12 and university levels to address the national transition to Unified English Braille, and technology is reshaping inclusive classrooms. Our students must have evidence-based tools and techniques to be able to keep pace with their peers. All of these are immediate needs, justifying a targeted funding program for the fields of BVI and DB.
* Longitudinal research is needed to help our fields understand the longer-term student outcomes with respect to technology, science technology engineering and math (STEM) education, service delivery models, personnel preparation, and interventions.

***Responses to IES’s questions:***

# **What are the characteristics of education and special education studies that have had the most influence on policy and practice during the past 10 years? What lessons can we draw from these studies to inform NCER’s and NCSER’s future work?**

A review of NCSER’s recently funded studies reveals very few studies in the fields of BVI and DB. The majority of the funded studies in our fields were undertaken by software and testing companies, and – from 2006 to 2012 – we identified only three funded studies undertaken by universities. While we recognize the need for innovations in accessible testing and technology,[[1]](#footnote-1) we also strongly feel that there is a need for research across many more domains of education and special education for students with BVI and DB.

We applaud the AnimalWatch VI Suite study’s emphasis on STEM education (Beal/University of Arizona, 2012), the Expanded Core Curriculum/NLTS2 study which helped us to better understand transition outcomes (Ferrell/University of Northern Colorado, 2009), and the investigation of Effects of School Climates and Supports on Mathematics Achievement (Cavenaugh/Mississippi State, 2006). These IES-supported studies were well conceived and are helping us to develop best practices and understand the processes involved in math learning and transition, which are crucial for student success. However, many researchers in BVI and DB were unsuccessful in obtaining funding from NCSER for equally important studies – in some cases researchers were able to find other sources of support, and in many cases important research has not been conducted due to lack of funding

An example of a pivotal research project in our field which was funded outside of IES is the ABC Braille Study (2002-2007, funded by the American Printing House for the Blind, the American Foundation for the Blind, the Canadian Braille Literacy Foundation, and Special Educational Technology) (American Printing House for the Blind, 2012). The study involved eight universities, a specialized school for children with visual impairments, public schools, and the American Printing House. Qualitative and quantitative research with 44 students in 12 states and one Canadian province over five years addressed over 200 variables and hundreds of hours of observations and interviews. Publications from the study provided immediately applicable information about braille, writing and literacy instruction for teachers, families, and personnel preparation programs. Some examples included:

* “Acquisition of Literacy Skills by Young Children Who Are Blind: Results from the ABC Braille Study” (Emerson, Holbrook, D’Andrea, 2009)
* “Social Experiences of Beginning Braille Readers in Literacy Activities: Qualitative and Quantitative Findings of the ABC Braille Study” (Sacks, Kamei-Hannan, Erin, Barclay, & Sitar, 2009)
* “Parents' Perspectives on Braille Literacy: Results from the ABC Braille Study” (Kamei-Hannan & Sacks, 2012)
* “Learning to Write in Braille: An Analysis of Writing Samples from Participants in the Alphabetic Braille and Contracted (ABC) Braille Study” (Erin & Wright, 2011)
* “The Role of Hand Dominance in Beginning Braille Readers” (Wright, 2009)

Additional research projects with characteristics of the ABC Braille Study (longitudinal, cross-university, qualitative and quantitative, emphasis on braille and literacy) would be extremely beneficial to our fields.

# **What are the critical problems or issues on which new research is needed?**

During a national conference call with the American Foundation for the Blind, advocates and researchers shared some of their most urgent research priorities. We are often overwhelmed by both the breadth and depth of what has yet to be learned in our fields; however we feel that the following are essential areas which must be further investigated in order to expand and improve programming for students with BVI and DB.

## Students with multiple-impairments including visual impairments

Students with BVI and DB often also have additional disabilities related to medical syndromes and perinatal complications. All research must address the complex etiologies and demographic characteristics of the changing student population, especially the unique learning needs of students who have intellectual, developmental, physical, and emotional/behavioral challenges. One example of research needed in this area is with respect to Active Learning techniques (promoted by Danish researcher Lilli Nielsen)(“LilliWorks Active Learning Foundation,” 2014). Longitudinal research is needed to determine the efficacy of these techniques in improving outcomes for students with multiple disabilities over time. Additional research is also needed in literacy practices (braille, picture/tactile exchange, etc.) and technology (adaptive and alternative communication devices, text-to-speech and speech-to-text, etc.) for students with multiple impairments.

## Students with DB

Students who are both blind/visually impaired and deaf/hard-of-hearing (DHH) have unique learning needs beyond the needs of students wo are BVI and students who are DHH. The combined sensory losses require teachers to employ creative and individualized communication and instruction strategies. Additional research is needed in areas such as orientation and mobility in order to appropriately redesign techniques which have been designed for people who are BVI. Furthermore, research is needed to understand and identify best practices for DB consultants and interveners, specialized related service providers who “intervene” to provide access for students with DB in educational environments.

## Students with low-vision

Students with limited usable vision – who may or may not be able to read large print and use visual cues for learning and travel – have unique educational needs which must be better understood so that special education programs can promote greater school readiness and post-secondary outcomes. While there is clinical research into low vision etiologies and interventions, our field lacks sufficient applied research to guide instructional practices for these students. Areas where studies are needed include

* the conducting and implementation of clinical low vision evaluations, instruction in and use of optical devices,
* instruction in braille for students with low vision (including students who may be dual-media [print and braille] users),
* supporting students’ use of functional distance vision (particularly in preparing students who may qualify for drivers licenses),
* conducting and using learning media assessments to make valid and reliable determinations about appropriate reading media,
* orientation and mobility,
* and quality of life/psychosocial evaluation and support to address the unique challenges of adjusting and “fitting in” as a student with visual impairment.

## Braille

The Braille Authority of North America (2012) recently adopted the Unified English Braille Code (UEB), replacing the English Braille American Edition. This transition from one standardized format and code to another affects all braille readers and braille instructors in the United States. Materials must be rewritten and training programs must be redesigned to accommodate this new code. Of particular interest and concern for researchers in BVI is the question of how to handle instructing students in mathematics and science codes given this transition. These UEB research questions add to an already growing list of other important braille research topics, including how to ensure the most effective and efficient braille production of school-generated worksheets, how to improve the production of tactile graphics to support student learning, and the impact of changes in technologies on the quality of materials production for students who use braille and tactile graphics.

## Early childhood

As with most all areas of special education, early childhood is an important area of focus for research in BVI and DB. At present, low vision evaluations are being conducted and devices are being prescribed for children as young as two years old, but we do not have sufficient research to say which devices and services are effective at which ages, and we have little evidence to support any particular methods or interventions for instructing families and introducing devices for young children.

## Students with cortical visual impairment and/or cerebral visual impairment

Cortical and cerebral visual impairment (CVI) is the largest cause of visual impairment in developed nations; however, we currently do not have an evidence-base of teaching methods for the full spectrum of children who have CVI. Additionally, CVI may co-occur with autism spectrum disorder and learning disabilities, but this complex relationship is not well understood. Multidisciplinary research is needed regarding identification, assessment methods, and intervention approaches.

## Technology

Technology is rapidly changing education for all students, and the impact is especially great for students with BVI and DB who often rely on multiple technologies to access their educational environment. Important technology-related research questions in our fields include:

* How do we effectively instruct with and support the use of tablets, “iDevices,” and associated applications?
* Does early introduction of assistive technologies improve reliable and continued use of these tools by students in later school years?
* Technology abandonment – why do some students stop using their devices?
* Longitudinal research into technology and transition – are students still using their devices ten years after they leave school? If not, what are they using? What are the devices students need to know for college and career?

## Assessment

In addition to the assessment areas already mentioned, research is needed into the standardization of psycho-educational and other assessments for students with BVI and DB. School psychologists and educational diagnosticians are required by the Individuals with Disabilities Education Act to provide full, individual evaluations appropriate to each student with special educational needs; however, important assessments used with other students are not normed or standardized on the population of students with BVI and DB. Without standardization of these assessments, students cannot be effectively evaluated every three years and they cannot be assessed for additional disabilities, such as specific learning disabilities, or for gifted and talented programs. Accurate assessment drives the development of effective individualized educational plans and appropriate instruction; therefore adaptation and evaluation of assessments must be a priority for our field.

## STEM, especially mathematics

Anecdotally, teachers of students with visual impairments report that their students struggle to master the mathematics concepts, particularly in inclusive mathematics classrooms with sighted peers. Furthermore, those students who do have an aptitude for mathematics in grade school often lose interest or do not continue to pursue careers in STEM and math-related fields in college. Additional research is urgently needed to help improve instruction and supports so that the national emphasis on STEM education benefits students with BVI and DB and leads to greater opportunities for students with disabilities in American science, technology, engineering, and mathematics career fields.

## Demographics and statistics for the population of students with BVI/DB

Given the low incidence of BVI and the even lower incidence of DB, researchers in our fields must always be looking for better ways to identify, measure, and describe the characteristics of families, infants, children, students, and graduates. Longitudinal studies collecting in-depth data with large numbers of students over time are well-suited for this purpose but are time-consuming and expensive.

## Service delivery and personnel preparation

Teacher preparation programs for the fields of BVI and DB vary greatly, as do the positions where these specially trained teachers are ultimately employed. From state to state, teacher certification requirements (if they exist) are vastly different, due to a lack of research regarding what types of teacher preparation and what methods of service delivery are most effective at improving student outcomes. Students are served through itinerant, residential, and resource-room programs, sometimes with paraprofessional support, sometimes with an on-site braille production specialist, and sometimes with a combination of additional supports from orientation and mobility specialists, occupational therapists, physical therapists, adaptive PE teachers, etc. Increasingly, technologies such as bug-in-the-ear and web conferencing are being considered in order to deliver specialized services to remote and hard-to-reach areas; however, there is little research available on the effectiveness of such methods. Longitudinal studies and other qualitative and quantitative research designs are needed in order to better understand the relationships between teacher preparation, service delivery type and amount, and student outcomes in the core and expanded core curriculum.

# **How can NCER and NCSER target their funds to do the most good for the field?**

As we have just described, there are countless topics in which research is urgently needed to support education for students with BVI and DB. However, low incidence disability fields, such as BVI and DB, require innovative research designs, substantial dedication of time, and significant investments of resources. In a high incidence disability field, a researcher may be able to quickly identify 100 students for a study in a single school district, while a similar researcher in the BVI field may only be able to identify 50 participants in an entire state. The smaller populations of BVI and DB are well suited for qualitative and single-subject research designs, which help establish new research questions and provide evidence for best practices after multiple replications of effect; however, traditionally, these research designs have not been acceptable to government and institutional funding agencies who emphasize randomized controlled trials and “large N,” quantitative investigations.

As dedicated advocates and researchers, we are constantly looking for new ways to conduct and fund research such that our research priorities and methods can align with the interests and best practices emphasized by funders. We welcome and strongly encourage NCSER to initiate a targeted program of assistance and supports for low-incidence disability research, including outreach and collaboration with university programs conducting research in BVI and DB. With NCSER’s assistance, researchers could be better prepared to submit successful proposals in response to IES priorities, and NCSER’s grant-making offices would have greater insight into the needs, limitations, and working environments of BVI and DB researchers. The Office of Special Education Programs has recently refunded the National Leadership Consortium in Sensory Disabilities (NLCSD) to help address the leadership shortage in sensory disability fields (National Leadership Consortium in Sensory Disabilities, 2014); the National Center for Special Education Research could likewise fund a training and outreach program to address our urgent need for research.

Additionally, the existing IES proposal and review process should be evaluated to ensure opportunities are available for funding effective and important research proposals from low-incidence fields. IES’s long-term special education grant programs could be expanded/revised to include BVI, DB, sensory disabilities, and/or low-incidence disabilities as a topic area or areas, and requests for applications could describe acceptable ways to propose studies involving research methodologies such as single-subject and qualitative research. Finally, IES could take additional steps to ensure that all persons who are selected to sit on review panels looking over studies in BVI and DB have the background and expertise to understand the unique challenges of research in our fields.

We genuinely hope that the feedback presented in this letter is useful to IES as you reflect on the mission and goals of NCER and NCSER. The undersigned organizations support the contents of this letter and may also contact you individually to voice specific concerns. Please continue to stay in contact with our field and let us know how we can partner with IES as you make improvements in existing programs and plan for future initiatives and research competitions.

Sincerely,

**Organizations:**

Alabama Institute for Deaf and Blind

American Council of the Blind (ACB)

American Foundation for the Blind (AFB)

Association for the Education and Rehabilitation of the Blind and Visually Impaired

The Hadley School for the Blind

Helen Keller National Center for Deaf-blind Youths and Adults

National Family Association for Deaf-Blind

National Research and Training Center on Blindness and Low Vision at Mississippi State University

New York Parent Association for Deaf-Blind (NYPADB)

Salus University, Department of Blindness and Low Vision Studies, Elkins Park, Pennsylvania

Stephen F. Austin State University, Visual Impairment Program, Nacogdoches, Texas

Texas School for the Blind and Visually Impaired

**Individuals:**

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**Charles E. Young,** President, The Hadley School for the Blind, Winnetka, Illinois

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1. Funded projects by technology and test developers (related to blindness/visual impairment/deaf-blindness) since 2006:

Educational Testing Service, 2011 - Development of Computer-based Testing Accommodations for Students with Visual Disabilities

Educational Testing Service, 2011 - Expanding Audio Access to Mathematics Expressions by Students with Visual Impairments via MathML

Information Research Corporation, 2011 - Haptic Immersion Platform to Improve STEM Learning for the Visually Impaired

Quantum Simulations, Inc., 2011 - Artificial Intelligence Software to Tutor Literary Braille to the Blind and Visually Impaired

Mid-continent Research for Education and Learning, 2008 - Visualizing Science with Adapted Curriculum Enhancements

Nimble Assessments, 2008 - The Universal Assessment System

Quantum Simulations, Inc., 2008 - Artificial Intelligence Software for Individualized Math Tutoring for Students Who are Blind and Visually Impaired

Educational Testing Service, 2006 - National Accessible Reading Assessment Projects: Research and Development for Students with Visual Impairments [↑](#footnote-ref-1)