Funding for EEJ ECERC Projects
(as of April 1, 2015)

EXTERNALLY FUNDED PROJECTS

Improving Services for Deaf Children Using Tele-Intervention

Researchers: Blaiser, KM; Behl, D; and White, KR

Funding: Daniels Fund, $200,000, July, 2014 to August 2015

Recent technological advancements in newborn hearing screening, diagnosis, and hearing technology make it possible for most children who are DHH to achieve at the same level as their hearing peers. Unfortunately, many children who are DHH cannot access appropriate educational services because they live in rural and remote settings. Previous work at USU and other places has shown that 2-way videoconferencing can be an effective and efficient way of delivering services to these children. Based on the experiences and materials developed in our previous work, this project is developing online materials for program administrators, early interventionists, and parents to help with the implementation of tele-intervention programs in other locations. Programs in Utah, Colorado, Idaho and Wyoming are participating.

Listening and Spoken Language Emphasis for Deaf Educators, Speech-Language Pathologists and Audiologists

Researchers: White, KR; Munoz, K; and Nelson, L

Funding: Oberkotter Foundation, $2.53 million, January 2007 to May 2015

Advances in hearing technology and pedagogy over the last 20 years have made it possible for most children who are deaf or hard of hearing to learn to talk. Unfortunately, there is a shortage of teachers and clinicians who are trained to help children who are DHH acquire listening and spoken language skills. The Department of Communicative Disorders and Deaf Education has developed an interdisciplinary graduate training program to meet this need. The Oberkotter Foundation has awarded funds to USU each year since 2007 to provide financial support to students and to help operate the Sound Beginnings program that serves as the primary practicum site for the graduate training programs.
HiTrack Data Management and Tracking for EHDI Programs

Researchers: Fritzler, James, Ladner, Daniel, and White Karl

Funding: License agreements with various states and hospitals., $350,000, July 2014 to June 2015.

To assist state EHDI programs in managing data from their newborn hearing screening, diagnosis and intervention programs, NCHAM developed and maintains a tracking and data management system entitled HiTrack. The system can be operated either on stand-alone computers or as a web-based program. In addition to keeping track and prompting users about what babies have received or are in need of EHDI services, the program automatically generates letters to parents and health care providers, and reports about the status of various parts of the EHDI program. Help-desk staff train new users and provide assistance as as needed.

Cognition and Comprehension

Researchers: Gillam, Ron; Montgomery, James; Evans, Julia

Funding: National Institute on Deafness and Other Communicative Disorders; $2,436,412 (USU subcontract - $518,425), 9/2012 - 8/2016

Debate exits as to whether the sentence comprehension problems in children with SLI reflect a deficit in the language system itself (domain-specific view) or a general deficit in cognitive processing (domain-general view). The primary goal of this large-scale project is to systematically determine which account provides the better descriptive and explanatory model to characterize sentence comprehension in children with SLI. In this multi-site study, 150 children with SLI (ages 9;0-11;11) and 300 typically-developing children will complete several cognitive processing tasks (controlled attention, lexical retrieval, retrieval interference, short-term memory, working memory, and processing speed) and a language comprehension task. We hypothesize that the modeling results will support the domain-general account. The results may lead a fundamentally new theoretical understanding of the relationship between cognitive processing and sentence comprehension. Second, critical insights may emerge into which cognitive mechanisms could be targeted in alternative language treatments designed to improve the language comprehension of children with SLI.

LEND Infant and Pediatric Audiology (IPA)

Researchers: Holt, Judith; Mcvicar, Stephanie; Munoz, Karen; and Pitt, Cache

Funding: Association of University Centers on Disabilities, $205,000, March 2010 to September 2015.

This project is provides financial support to trainees to increase the number of pediatric audiologists who are serving children with special health care needs and their families. By integrating this initiative with the existing URLEND (Utah Regional Leadership Education in Neurodevelopmental Disabilities) interdisciplinary training program, two important “value added” components will be realized. First, pediatric audiology trainees will gain important leadership skills and an understanding of the systems that provide services to children with special health care needs (CSHCN) and their families. These skills will enable them to be effective change agents in improving the EHDI system that, by design and necessity, functions as a part of the CSHCN system in every state. Second, other URLEND trainees will be exposed to more information about early childhood hearing loss and the associated services so that they become more effective partners in delivering the interdisciplinary services needed by these children and their families.
Personnel Preparation for Early Childhood Deaf Educators

Researcher(s): Nelson Lauri, and White, Karl
Funding: Office of Special Education Programs, US Department of Education; $1,248,000, September 2012 to August 2017.

The Listening and Spoken Language (LSL) Deaf Education Graduate Training program at Utah State University (USU) is built on a strong foundation of evidence-based practices and established competencies in family-centered early intervention for the development of listening and spoken language skills in children who are Deaf or Hard of Hearing (DHH). Funding from OSEP is used primarily to recruit students to the program by providing tuition support and stipends. The program prepares students to serve children who are DHH, both with and without additional disabilities, by providing content depth in LSL deaf education strategies along with content breadth in special education, resulting in licensed teachers who demonstrate the competencies needed to provide high-quality instruction and evidence-based intervention. The program is innovative and progressive, offering an interdisciplinary graduate training program in which deaf education students, audiology students, and speech-language pathology students have meaningful opportunities for learning together and mentoring each other. Extensive hands-on practicum experiences are provided beginning the first semester of the graduate training at the USU campus-based pediatric audiology clinic and early intervention and preschool program called Sound Beginnings. Furthermore, integrated advanced technology provides students with training opportunities using a tele-health and model of service delivery.

Enhancing Skills of Current Educators and Clinicians to Teach Listening and Spoken Language Skills to Children with Hearing Loss

Researcher(s): Nelson, Lauri & Parker, Liz

There is a shortage of qualified deaf educators in Utah, particularly those who are trained to help children acquire listening and spoken language (LSL) skills. Because of advances in hearing technology (e.g., cochlear implants, hearing aids), and the fact that 95% of children with hearing loss are born to hearing parents, most families are choosing a LSL approach to communication for their children who are DHH. For those families who choose LSL, improvements in technology have resulted in dramatically improved success in communication, language acquisition, and academic skill development for educational achievement in mainstream classroom settings.

This project, implemented through the Department of Communicative Disorders and Deaf Education at Utah State University (USU), is using distance technologies to alleviate critical shortages throughout Utah by:

- Providing advanced training opportunities for currently licensed special education and deaf education preschool teachers that leads to a Hearing Impairment endorsement issued by the USOE, and
- Providing four web-broadcast modules for general education teachers who need training to serve to children who are DHH. These modules will include strategies for effective collaboration with deaf education, special education, and audiology professionals.
Interdisciplinary Doctoral Program to Promote Evidence-Based Language and Literacy Practices

**Researcher(s):** Slocum, Tim and Gillam, Ron  
**Funding:** Office of Special Education Programs; $ 799,996, January 1, 2010 to June 1, 2015

This grant provides funding for five doctoral students in Special Education and Speech-Language Pathology who take specialized coursework in language development, language and literacy instruction, evidence-based practices, and literacy development in English Language Learners. Students in this program develop specific competencies in conducting research on student outcomes, completing evidence-based systematic reviews, using single-subject research methods, conducting randomized clinical trials, and disseminating research results to technical and professional audiences.

National Technical Resource Center for Early Hearing Detection and Intervention (EHDI) Programs

**Researcher(s):** White, Karl, Eiserman, William, and Munoz, Karen  
**Funding:** Maternal and Child Health Bureau, $8,800,000, April 2015 to March 2020

The importance of Early Hearing Detection and Intervention (EHDI) is widely recognized, and more than 95% of newborns in the U.S. are now screened for hearing loss. However, many babies who do not pass the screen are lost to follow-up, and there are significant problems linking EHDI systems to diagnostic, early intervention, medical home, and family support activities. The National Technical Resource Center (NTRC) assists state agencies and other federal and non-federal partners in the development, improvement, and operation of sustainable statewide newborn hearing screening and intervention (often referred to as EHDI systems). Gaps in the system noted by State EHDI Coordinators, collaborators, and other EHDI experts are addressed through technical assistance activities, including resource development, education and training, forums for communication and coordination, policy initiatives, and evidence-based data collection. Activities are coordinated and often jointly implemented with professional and advocacy organizations who serve children with hearing loss, State EHDI systems, and appropriate federal agencies.

Sound Beginnings for Birth to Five-year Old Children who are Deaf or Hard of Hearing

**Researcher(s):** White, Karl, Munoz, Karen and Nelson, Lauri  
**Funding:** Utah State Schools for the Deaf and Blind, $500,000, July 1, 2014 to June 30, 2015

The Sound Beginnings program is an early education program for birth to five-year old children who are deaf or hard of hearing. Sound Beginnings has been designated as a model demonstration program by the Utah State Schools for the Deaf and Blind and provides educational and audiological services to all infants and young children with hearing loss in Northern Utah. Birth to 18 month old children receive home-based services, 18-36 month old children attend a toddler group twice each week with a parent, and 36-60 month old children attend a full-day educational program. Sound Beginnings serves as the primary practicum site for audiology, deaf education, and speech language pathology graduate students who are emphasizing listening and spoken language.
Reducing Loss to Follow-up in the Utah EHDI Program

Researcher(s): White, Karl, and Munoz, Karen

Funding: Utah Department of Health, $90,000, July 1, 2014 to June 30, 2015

The Utah Department of Health contracts with NCHAM to assist with quality improvement activities related to the Early Hearing Detection and Intervention (EHDI) program in Utah. During the 2014/2015 year NCHAM staff are working with the Department of Health to: 1) survey physicians about their attitudes, beliefs and practices related to EHDI, 2) assist in the implementation of a tele-audiology program, provide staff support to the state’s EHDI advisory committee, provide software for tracking screening and diagnostic results, and assist with integrating data among various health information data bases for young children.

Utah State Legislative Support for Sound Beginnings

Researcher(s): White, Karl, Munoz, Karen, and Nelson, Lauri

Funding: Utah State Legislature, $325,000, July 1, 2014 to June 30, 2015

Since July 2008 the Utah Legislature has provided an annual appropriation to the Sound Beginnings program to assist with the preparation of teachers and clinicians to provide state-of-the-art services to families who want their deaf children to listen and talk and to provide research-based education and training services for infants and young children who are deaf. Funds are also used to provide in-service training and technical assistance to other programs (school districts, USDB, health care providers) that will enable them to offer excellent programs for families who choose an auditory-oral emphasis.

CCAMPIS Project

Researchers: Boyce, Lisa; Humphreys, Konie; Juhasz, Audrey; & Legako, Stephanie

Funding: Office of Postsecondary Education; $361,549 per year (renewed noncompetitively for four years) October 1, 2013 – September 30, 2017

The primary goal of the proposed CCAMPIS project is to greatly improve the percentage of Pell-eligible student parents who persist in postsecondary education and graduate from USU. This goal will be accomplished through the use of child care subsidy funds, increase of high-quality nationally accredited child care providers to ensure accessibility for student parents, and provision of academic and social supports. An important second goal of this project is to promote children’s development through their participation in high quality child care and their parents’ involvement in their care.

Connecting Newborn Hearing Screening to Audiolological Diagnosis and Early Intervention Services

Researchers: White KR, Munoz K, Storey K, & Kunz M.

Funding: Oberkotter Foundation, $263,068, July 2014 to June 2017

Although almost all newborns in Utah are screened for hearing loss (98%+), more than half of those who fail the newborn hearing screening test cannot be documented to receive an audiological diagnosis. Additionally, of those diagnosed with permanent hearing loss, there is no documentation for more than 25% of whether they have an opportunity to enroll their child in an early intervention program. This project will collaborate with the Utah Department of Health to reduce the number of children lost to follow-up/documentation. Base on interviews with hospital screening coordinators,
analyses of the data, and conversations with families of affected children, new strategies will be developed and tested, and successful strategies will be spread state-wide.

A Multi-site Evaluation of Tele-intervention

**Researchers:** Behl D, White KR, \& Blaiser KM  
**Funding:** Oberkotter Foundation, $37,000, January 2014 to July 2015

The Oberkotter Foundation previously funded early intervention programs in Utah, Washington, Oregon, Missouri and Maine to provide early intervention services to children who were deaf or hard of hearing using 2-way video-conferencing equipment. The aim of this project was to coordinate and establish protocol with each of these sites to assess the costs and effects of such ‘tele-intervention’ services compared to in-person visits made to the homes of participating families.

National EHDI Conference

**Researchers:** White KR, McClellan M.

Various sponsors and registration fees, $300,000, July 2014 to June 2015

Every state now has an Early Hearing Detection and Intervention (EHDI) Program that is responsible for ensuring that all newborns are screened for hearing loss and that those who need it receive diagnostic evaluations and appropriate audiological and educational services. Each year since 2001, NCHAM, in conjunction with the federal Maternal and Child Health Bureau and the American Academy of Pediatrics, has organized a National EHDI Conference that is focused on expanding and improving EHDI programs throughout the United States. The Conference is typically attended by 1,000 people including EHDI program staff from each state and territory, audiologists, speech-language pathologists, health care providers, university faculty and students, parents of children who are deaf or hard of hearing, and advocates.

Quality Improvement for EHDI Programs

**Researchers:** Ward A \& White KR

Maternal and Child Health Bureau, $148,000, September 2014 to March 2016

As a part of the federal funding they receive to assist with the operation and improvement of Early Hearing Detection and Intervention (EHDI) Programs, every state is required to use Quality Improvement methodology to identify needs and continuously improve their programs. NCHAM provides technical assistance and support to the state EHDI programs using a national network of Quality Improvement Advisors, a virtual Learning Community, webinars, and other training and support materials.

Cytomegalovirus Public Health and Policy Conference

**Researchers:** Menlove RR, Doutre SM, White K, and Ward A

Various sponsors and registration fees, $80,000, July 2014 to March 2015

Cytomegalovirus (CMV) is the most common cause of congenital defects in babies in developed countries. Pregnant women who contract CMV can pass the virus onto their unborn baby, which can result in multiple disabilities including: hearing loss, vision loss,
small head size, lack of coordination, and seizures. Recognizing the lack of awareness about congenital cytomegalovirus (CMV) and its long-term effects on babies, Utah lawmakers led the nation by passing a bill in 2014 that directed the Utah Department of Health (UDOH) to establish a public education program to raise awareness of CMV and ways to prevent its spread. As a part of that effort, NCHAM agreed to organize the CMV Public Health and Policy Conference to present the latest research on diagnosis and treatment, raise awareness, delineate prevention efforts, provide information about early intervention options, and disseminate family support resources in an effort to reduce the number of babies born with CMV. The conference was attended by 300+ people from 29 different states and 13 countries.

EI SNAPSHOT (Early Intervention-Systematic Nationwide Analysis of Programs' Strengths, Hurdles, Opportunities and Trends)

Researchers: White KR, Behl D, Eiserman W & Shisler L
Maternal and Child Health Bureau, $300,000, May 2015 to June 2016

Although there is widespread agreement that many infants and young children who are deaf or hard of hearing do not receive the type of early intervention services they need, most of the evidence is anecdotal, based on very small or non-representative samples, or is outdated. The EI SNAPSHOT project is responding to this need by collecting information about Parents’ perceptions, needs, and choices about early intervention services, analyzing the ways in which early intervention services are provided in different parts of the country, and documenting the quality, accuracy, and comprehensiveness of information provided by various agencies and programs to parents of children who are deaf or hard of hearing.

Mathematics Intervention Training Academy

Researchers: Westenskow, A., Moyer-Packenham, P., and Child, B.
Funding: Utah State Office of Education, $128,298; January 2015 to January 2018

Based in the Tutoring Intervention and Mathematics Enrichment (TIME) Clinic and in the Logan City and Rich County Schools, this project will provide mathematics intervention training and tutoring experiences for Grades 2-5 teachers to develop their skills in providing mathematics interventions to children in grades 2 to 5. Using Iceberg Diagnostic models developed in the TIME Clinic and lessons developed collaboratively with teachers, training will support the implementation of mathematics intervention tutoring experiences with students. This project will increase the effectiveness of teachers as they support Tier II struggling students in classroom and intervention settings. The program is modeled after a successful summer intervention piloted by LSCD and the TIME Clinic in summer 2014. In the summer pilot program, teachers participated in two days of professional development focused on effective intervention practices. This introduced teachers to a repertoire of intervention activities, lesson ideas, and diagnostic assessments. Teachers conducted ten sessions of one-to-one summer tutoring with Tier II students in their local schools. This experience provided teachers with an in-depth understanding of students who struggle in mathematics, and an opportunity to practice newly learned intervention methods and assessments. Research during the project demonstrated significant pre- to post-test gains for the students in the project, with large effect sizes during the intervention. Teachers reported increased understanding of specific
strategies to support struggling students. This grant will make it possible for teachers to provide similar intervention. Research during the project will focus on issues concerning mathematics intervention and will develop the frameworks for a new mathematics intervention program for use in other school districts.

Emma Eccles Jones Early Childhood Education Symposium
Researchers: D. Ray Reutzel
Funding: Utah State Office of Education, $10,000, January 1 – July 31, 2015
The Emma Eccles Jones Early Childhood Education Symposium has been a continuous service of the EEJ ECE Center for 17 years. This annual symposium over the years has provided professional development workshops for over 4,000 teachers statewide, in the region and internationally. The focus of the 2015 Symposium is on Effective Teaching of the Utah Core English Language Arts to English Language Learning Students – THE SIOP Model. Top national presenters including one of the original authors of the SIOP model will be this year’s presenters at the Ogden Eccles Center, June 8-9, 2015.

INTERNALLY FUNDED PROJECTS

Using NHANES to Estimate the Prevalence of Permanent Hearing Loss
Researchers: White KR, Barrett T, Munoz K.
Funding: NCHAM, $5,000, July 2014 to June 2015
The National Health and Nutrition Examination Survey III included audiometric evaluation of a nationally representative sample of children. Although this data has been analyzed and reported by others, previous work did not separate those children who had fluctuating conductive losses from those that had permanent hearing loss. This project will extend previous work to better estimate the prevalence of permanent hearing loss.

Neural Activation During Complex Sentence Interpretation
Researchers: Gillam, R, Gillam S., and Wan, N.
Funding: Lillywhite Endowment, $20,000, September 2013 to June 2015
Children with specific language impairment (SLI) have difficulties with listening comprehension tasks. However, not much is known about the mechanisms in the brain that are involved (or maybe not involved) with SLI during listening comprehension tasks. In this study, children with SLI and typically developing (TD) children (9-11yo) perform the Agent Selection Task, where they listen to a sentence and determine which of the objects in the sentence is performing the action. While they perform this task, they are also having their brain activity recorded using functional near-infrared spectroscopy (fNIRS), a non-invasive neuroimaging tool that uses near-infrared light to detect and record concentrations of oxygen in the blood in your head. The goal is to give insight to the neural areas used by SLI during this task and compare that to the TD children, showing a correlation between brain activity differences and the behavior differences present between SLI and TD. Current results indicate whether there is a difference in neural activity for children with and without SLI.
Children’s Brains at Rest

Researchers: Gillam, R. and Wan, N.
Funding: Lillywhite Endowment, $10,000, August 2014 to October 2016
When our brain is at rest, it is not “off” -- there is still activity throughout the entire brain, even when we are seemingly doing nothing. Studying resting states can give insight into baseline activation patterns in the brain, which can help serve to better explain activities in the brain. During many of our experiments, children receive instructions to induce a resting state -- sometimes it is staring at a picture or an object, other times it is counting to yourself or having your eyes closed for a period of time. During this time, we are recording brain activation via functional near-infrared spectroscopy (fNIRS), a non-invasive neuroimaging tool that uses near-infrared light to detect and record concentrations of oxygen in the blood in your head. This research will provide important information about whether rest for children is unlike rest for adults and whether there are brain differences between children with and without language impairments when their brains are resting.

Neural Processes Related to Stuttering

Researchers: Gillam, R. Studenka, B. and Gillam, S.
Funding: Lillywhite Endowment $20,000, September 2013 to August 2015
Researching stutters using neuroimaging techniques like electroencephalography (EEG) or functional magnetic resonance imaging (fMRI) is difficult because talking and head movement during a brain recording session affects how these instruments record data in a negative way. With functional near-infrared spectroscopy (fNIRS), a non-invasive neuroimaging tool that uses near-infrared light to detect and record concentrations of oxygen in the blood in your head, participants are able to talk and move more freely than during recording sessions with EEG or fMRI. Because of this advancement, we are able to study communication as it really occurs. In this case, we study neural activation patterns as children and adults who stutter are engaged in speaking situations. We have individuals who do and do not stutter make phone calls to various places and record their brain activity during fluent and disfluent (aka stuttered) speech. We then compare neural activation patterns during stuttering to neural activation during fluent speech and during rest. Current results suggest there are indeed differences in brain areas involved with speech production when comparing stuttering to fluent speech.

Attention and Working Memory

Researchers: Gillam, R. and Wan, N.
Funding: Lillywhite Endowment $10,000, September 2014 to September 2016
The front part of the brain (the frontal cortex) is involved in the processes of attention and memory. The greater the demands of attention and memory, the greater the activation that is required from your frontal cortex. In this study, we seek to determine which neural correlates relate to attention in the frontal cortex versus which neural correlates relate to memory in children. While performing attention and working memory tasks, we record brain activity using functional near-infrared spectroscopy (fNIRS), a non-invasive neuroimaging tool that uses near-infrared light to detect and record concentrations of oxygen in the blood in your head. We are interested in whether attention and/or memory neural correlates are related to language impairments in children.
Teaching Text Structure: Examining the Affordances of Children’s Informational Texts

Researchers: Jones, Cindy, Reutzel, Ray, & Clark, Sarah
Funding: Emma Eccles Jones Endowment Funds, $5,000

This study investigated the affordances of informational texts to serve as model texts for teaching text structure to elementary school children. Content analysis of a random sampling of children’s informational texts from top publishers was conducted on text structure organization and on the inclusion of text features as signals of text structure. Our findings showed three limitations to the affordances present in informational texts currently available for elementary school children. Implications of these findings are discussed.

Repeated Reading: Testing Three Models of When to Change the Text

Researchers: Lewis, Greg & Reutzel, Ray
Funding: Emma Eccles Jones Endowment Funds, $2,000

Oral repeated readings have been used in various ways over time to develop student’s reading ability (Rasinski, 2006). In the National Reading Panel Report (2000), repeated reading was listed as a strategy for the effective student practice of guided, repeated oral reading with teacher feedback. Repeated reading is currently a commonly used strategy in schools (Gamse, Bloom, Kemple, & Jacob, R., 2008). However, the research on the most effective techniques for implementation of the repeated reading strategy is limited. While repeated reading has produced results, lingering questions remain to guide teachers as to how to use this strategy efficiently.

Three criteria for moving to a new passage for fluency practice are commonly used in schools: 1) repeatedly read a passage until accuracy is higher than 90-95%; 2) reread passages a set number of times (3-7 times); and 3) Students reread until they reach a target goal of Words Read Correct Per Minute (WRCPM) or they reach a set increase gain goal, such as 2 WRCPM faster than the previous reading.

Providing Differentiated Professional Development to Enhance Elementary Education Literacy Instruction

Researchers: Sarah K. Clark
Funding: Utah State University, Research Catalyst Grant; $20,000, January 2014 – December 2014

The research catalyst grant provided funding for literacy experts to work one-on-one with elementary school teachers in their classroom to provide evidence-based reading instruction. Teachers met with literacy experts over the course of one year to design effective instruction as they taught young children how to read. Resources were provided to support reading instruction using the newly adopted Common Core State Standards as well lesson observations, modeling of effective reading instruction for young children, and lesson planning sessions. Teacher knowledge and effectiveness increased as a result of participation in this grant.
Multi-Modal Language Learning and Imaging

Researchers: Gillam, R., Gillam, S., Studenka, B.

Funding: Lillywhite Endowment $20,000, April, 2015 to August 2017

In this project, we propose to use HLM and other advanced statistical methods to model relationships between various cognitive skills, neural activation patterns and complex sentence comprehension in typical adults, monolingual children learning English in a typical manner, bilingual children learning English (EL) and children with Language Impairments (LI). Drawing from evolutionary psychology, cognitive load theory and Cowan’s embedded processes theory of working memory, Gillam et al. (in press) have suggested that language development is influenced by capacity limitations related to dynamic interactions between biologically endowed language knowledge and working memory processes. This project will use multi-modal data from behavior, eye-tracking, EEG and functional Near Infrared Spectroscopy (NIRS) to inform our understanding of the relationships between capacity limitations, neural processing and language development. This study aims to take steps toward first, determining what cognitive and neural activation processes a child uses when demonstrating word and sentence knowledge, and second, how these process can be used to differentiate typically-developing children, children who are learning English as a Second Language, and children with Language Impairments. Eye-tracking technology enables discreet analysis of eye-movements as participants scan a visual display while listening to instructions. EEG measures electrical potential shifts in brain activity that are time-locked to the presentation of a sound, word or sentence. NIRS is a non-invasive neuroimaging technology that detects cortical increases and decreases in the concentration of oxygenated and deoxygenated hemoglobin at multiple measurement sites. Specific aim one is to use our multi-modal approach to understanding word and sentence knowledge to gain an assessment of how language knowledge, brain activity and on-line behavior come together across development in typically-developing children and adults. Specific aim two is to extend this model to children who are learning English as a Second Language and children with Language Impairments in order to differentiate children who are simply slower in language development from those who will later become clinically delayed.

STUDENT PROJECTS

Audiologist Practices: Parent Hearing Aid Education & Support

Research(s): Meibos, Alex; Muñoz, Karen; White, Karl; Preston, Elizabeth; Pitt, Cache; Twohig, Michael

Early identification of hearing loss has led to routine fitting of hearing aids in infants and young children. Amplification provides opportunities to optimize child development, although it also introduces challenges for parents to navigate. Audiologists have a central role in providing parents with support to achieve effective management strategies and habits. The purpose of this study was to explore current practices of pediatric audiologists who work with children birth to five years of age, regarding their support of parent learning in achieving effective hearing aid management, identify existing gaps in service delivery, and to determine if audiologists were receptive to receiving training related to effective approaches to communication with families.
Assessment of Phonological and Morphological Development for Children with Hearing Loss and Hours of Hearing Aid Use

Researcher(s): Weston, Monica; Muñoz, Karen; Baliser, Kristina; White, Karl

This case study investigated average hours of daily hearing aid use and speech-language outcomes for children age 3-to 6- years of age with hearing loss. Participants included 9 children with bilateral hearing loss between 3 to 6 years of age. All participants demonstrated an improvement in articulation and language standard scores and percentiles however continued to demonstrate areas of weakness in sounds high frequency in nature. Through early identification and fitting, children gain access to speech sounds, however both informal and standardized measures should be used to identify and qualify children with hearing loss for increased support services for speech and language to ensure they maintain access to sound and gain speech and language skills at the correct developmental time points.

Pediatric Hearing Aid Use: Parent-Reported Challenges

Researcher(s): Olson, Whitney; Muñoz, Karen; Twphig, Michael; White, Karl; Blaiser, Kristina; Preston, Elizabeth

The aim of this study was to investigate parent reported challenges related to hearing aid management and parental psychosocial characteristics during the first three years of the child’s life. Parents experienced an array of challenges, even with prolonged hearing aid use. Service provided by audiologists must address parents’ needs regarding hearing aid management, skill acquisition and confidence, and emotional adjustment to the diagnosis. Experiences provided give valuable information about areas needing further investigation to improve the process for children with hearing loss.

Learning Two Languages: A Longitudinal Investigation of Discourse Skills for Spanish-English Bilinguals.

Researcher(s): Joel Hopper, Sandra Gillam, Ron Gillam

Dates: August 2015 - August 2016

Studies of maze production suggest that excessive maze behavior may be an indicator of a language learning problem. Bilingual children often evidence a greater percentage of maze behavior in their second as compared to their first language. Previous studies have compared mazes produced by bilingual and monolingual children in Spanish and English. Their findings suggested that there was no difference in the amount of maze behaviors between monolingual and bilingual speakers. The present study extends the work of Bedore by examining potential differences in the occurrence of mazing as children acquire more sophisticated language skills over time. For example, it is possible that children demonstrate more maze behaviors when they are experiencing a period of rapid language growth, or in instances where more complex language is required. The present study investigated language growth from K to 2nd grade for children who were learning English as their second language.
Narrative Intervention for Children with Autism: Targeting Core Symptoms
Researchers: Daphne Hartzheim, Sandra L. Gillam, Ron Gillam
Dates: June 2015 - August 2017
The purpose of this study was to test whether a program designed to teach narrative language skills was effective in increasing narrative proficiency, and knowledge of mental state and causal language for 5 children with high functioning autism (ASD). Five individuals with ASD between the ages 8-12 participated (2 girls, 3 boys). All participants had a formal diagnosis of ASD and four out of five participated in intensive applied behavior analysis treatment during their preschool years.

Content-Form Trade-offs in the Spontaneous Stories Told By Children with Autism Spectrum Disorder: Implications for Assessment and Instruction.
Researchers: Samantha DeLucchi, Telesha Fricke, and Kamilla Okey, Brigid Crotty, Sandra Gillam
Dates: September 2014 - September 2015
Children with Autism Spectrum Disorders (ASD) often experience marked difficulty achieving proficiency in narration and require explicit instruction to learn this important discourse skill. The present study was designed to extend the work of Colozzo et al., 2011 who examined content-form trade-offs in children with specific language impairment to children with ASD. The study employed a concurrent multiple baseline (across participants) design. Children received two, individual, 50-minute intervention sessions weekly for a period of about 12 weeks. Stories were elicited from single scene picture prompts once per week after instructional sessions. Stories were scored for narrative proficiency and for grammatical accuracy.
Findings revealed that prior to beginning narrative treatment, children’s grammatical accuracy was high and their narrative proficiency scores were low. However, during early treatment sessions, it was observed that children’s stories became less grammatical, but earned higher scores for narrative proficiency. In later treatment sessions, both grammatical accuracy and narrative proficiency was observed to be high. The findings from this study highlight the presence of a content-form trade-off, such that as children learn more complex discourse skills, they may experience a period of time during which they are more grammatically inaccurate. This will resolve as narrative proficiency becomes more stable. This study highlights the importance of evaluating multiple linguistic domains (narrative structure and grammatical adequacy) for children with ASD.

Grammatical and Narrative Content Adequacy in Story Retells Told by Children with Autism Spectrum Disorder (ASD) Before, During and After Narrative Instruction
Researchers: Emily Kunz, Shea Long & Melany Reeder, Brigid Crotty, Sandra Gillam
Dates: September 2014 - September 2015
It has been proposed that asking a child to make up their own story, rather than to retell a story, is a more stringent test of narrative ability and may tax the linguistic system revealing weaknesses not apparent in less difficult contexts (eg., retelling stories). At least one study has shown that children with Autism Spectrum Disorders (ASD) experience content-form tradeoffs as they master narrative discourse (DeLucchi, Fricke, Kaye, Crotty & Gillam, 2015). The content-form trade-off was observed when children
with ASD with typical grammatical skills and poor narrative proficiency were shown to experience significant grammatical difficulties as they mastered narrative discourse.

The purpose of this study was to determine whether content-form trade-offs were observed in stories children with ASD were asked to retell. Five children with ASD ranging in age from 9-12 were asked to retell stories weekly, during a baseline and narrative treatment period over the course of 12-16 weeks. The stories were scored for grammaticality and narrative proficiency. Story retells were observed to be grammatical whether elicited during baseline, early, mid or later treatment sessions. Children with lower language skills experienced times when they were completely unable to recall a story, particularly early on in instruction, although when they did, they experienced good grammatical accuracy. Children with higher language skills were always able to remember parts of the story and were highly grammatical. The story model (retell) may make it less difficult for students with ASD to focus on and remember content while also maintaining grammatical accuracy.

**Improving the Use of Mental State Verbs by Children with Autism Spectrum Disorders in Two Narrative Production Tasks: Story Retelling and Spontaneous Story Generation.**

**Researchers:** Mary Ann Hammon, Sydney Sneddon, & Madeline Williams, Brigid Crotty, Sandra Gillam

**Dates:** September 2014 - September 2016

Children diagnosed with ASD often experience marked difficulty in the comprehension and production of narrative discourse that extends well into their adolescent and adult years (7, 8, 9, 10). These narrative difficulties appear to be linked directly to the core symptoms of ASD that manifest in failure to plan using information from multiple sources, a hyper-focus on details at the expense of gist-level propositions and limited use of mental state and causal language to encode goals and motivations of characters (11). Theory of Mind (ToM) accounts propose that a core deficit in ASD is an inability to infer the emotional or mental states of others. Deficits in ToM have been shown to significantly impair one’s ability to engage in ongoing social interactions and to develop the linguistic knowledge (e.g., mental state and causal language) necessary for understanding the relationship between events in discourse (9). Mental state and causal language is necessary for the establishment of a causal framework to link story grammar elements together.

The overarching goal of this project was to test whether a program designed to teach narrative language skills was effective for increasing the use of mental state and causal language for children with high functioning autism (ASD). A multiple baseline across participants study was conducted with 5 children with ASD (ages 8-12). Intervention was provided for two 50-minute individual sessions per week for a total of 21-33 sessions (depending on the student). Children’s spontaneous stories and story retells, collected weekly, were analyzed for the use of mental state and causal language before, during and after intervention. All of the children made clinically significant gains after participating in the instruction, with clear changes in the use and complexity of mental state verbs during both types of narrative production tasks (story retell, spontaneous generation). The gains were maintained after intervention was discontinued.

Researchers: Mercedes Sanford, Ryan Pearson, & Kate Summers, Brigid Crotty, Sandra Gillam

Dates: September 2014 - September 2015

Deficits in complex syntax may not be apparent in stories that children with Autism Spectrum Disorders (ASD) create on their own. That is, in self-generated stories, complex syntactic forms are not obligatory in order to get the “message across.” However, in order to create complex stories, those that contain complicating actions and events, complex sentences are unavoidable. Although children with ASD have been said to have typical syntactic skills, it is possible, that this is due to a preference for syntactically simple utterances.

The purpose of this study was to examine the syntactic complexity of stories created by 5 children with ASD as they participated in an intervention to improve their narrative skills. Stories were elicited once weekly from single scene picture prompts; recorded, transcribed and then coded for narrative proficiency and syntactic complexity. Results indicated that during baseline when children were not receiving instruction, their self-generated stories contained more simple sentences (75-100%) that contained one main verb as compared to complex sentences (0-25%) that contained two or more main verbs. Their narrative skills during baseline were judged to be below average. Over the course of instruction, children’s narrative skills and their use of complex sentences increased in a similar pattern. Individual differences were observed in the impact that this pattern of change had on children’s verbal fluency and grammaticality. These differences will be discussed in terms of a cognitive load hypothesis.

The Relationship Between Narrative Proficiency and Syntactic Complexity of Story Retells Elicited from Children with ASD

Researchers: Taylor Anderson, Megan Israelsen, & Amy Nielsen, Brigid Crotty, Sandra Gillam

Dates: September 2014 - September 2015

Children with Autism Spectrum Disorders (ASD) have been shown to use substantially more simple sentences as compared to complex sentences in their spontaneously generated narratives). However, Sanford et al., showed that children with ASD began to use substantially more complex sentences in their stories during and after narrative treatment (>50%). It is possible that children with ASD may experience greater difficulty using complex sentences in stories they must generate than in retelling stories they have heard. This study is examining story retells of 5 children with ASD before, during and after narrative intervention for syntactic complexity. Results indicated that during baseline when children were not receiving instruction, their story retells contained more simple sentences than complex sentences. The use of complex sentences was observed to increase as children became more proficient in their narrative production skills. When compared to stories children generated on their own (spontaneous stories), the story retells contained more complex sentences overall, but were often associated with less verbal fluency particularly as children were mastering narrative skills. The findings will be discussed in terms of trade-offs in verbal fluency, grammaticality and the use of complex sentences during different stages of narrative proficiency as a function of initial language knowledge.
Content-Form Trade-offs in Spontaneous Stories and Retells Told by Children with Autism Spectrum Disorders: Implications for Assessment.

Researchers: Brigid Crotty, Sandra L. Gillam
Dates: April 2015 - August 2016
The purpose of this study was to examine the grammatical accuracy of spontaneously elicited stories and story retells told by children with Autism Spectrum Disorders (ASD) as they proceeded through a narrative intervention program. The findings will be presented at the Symposium for Child Language Disorders in Madison, Wisconsin (June, 2015). The data is also being used as part of Brigid’s Plan A thesis project.


Researchers: Sydney Sneddon, Sandra L. Gillam
Dates: October 2015 - April 2016
The purpose of this project is to conduct a systematic review of the literature that has examined the use of music therapy to improve outcomes for children with Autism Spectrum Disorder.

Clinician Recasts and Production of Complex Syntax by Children With and Without Specific Language Impairment.

Researchers: Rebekah Wada, Sandra Gillam, Ronald Gillam
Dates: September, 2014 - September, 2016
The purpose of this study was to examine the outcomes of the use of a facilitative recast procedure on the use of object and subject relative forms in sentences by 30 children; 15 with specific language impairment (SLI) and 15 who were developing typically (TL).

Measuring Oral Narrative Treatment Outcomes: Toward the Adoption of Objective Progress Monitoring Practices

Researchers: Beverly Collisson, Karen Bussiere, Heather Brown, Sarah Rose, and Sandra Gillam
This study will identify how much training is required by clinicians to achieve acceptable levels of inter-rater reliability and validity when scoring children’s narratives using the MISL. The primary objective of estimating inter-rater reliability over time will achieve the goal of developing a learning curve from which the number of training sessions required to achieve sufficient reliability can be deduced. When sufficient reliability is obtained (ICC > 0.80) the second objective is to estimate the validity of the scoring by comparing the MISL scores from the study participants to the gold standard as scored by the investigators. Knowing how much training is required to achieve sufficient reliability with colleagues will support responsible use of the MISL, thus increasing clinician capacity to achieve consistency in monitoring oral narrative treatment progress and ultimately make sound clinical decisions based on accurate evidence.
How Social Interaction With Tools Helps Us Understand the World from Another’s Perspective: Motor Theory of Mind in Children with Autism Spectrum Disorder

**Researchers:** Breanna E. Studenka, Sandra L. Gillam, Sushma Alphonsa, Daphne Hartzheim, Ron Gillam
**Dates:** May 2014 - May 2017

The purpose of this project is to determine whether children with ASD demonstrate difficulty in perspective taking in both motor and linguistic tasks, and whether training in linguistic perspective taking improves one or both of these skills.

Child and Maternal Factors that Contribute to Use of Gestures During Communication.

**Researchers:** Vicki Simonsmeier, Lisa Boyce, Ron Gillam
**Dates:** January, 2015 – May, 2016

This study is a retrospective video analysis of 120 24 month old children to determine what child factors (expressive language, receptive language, social reciprocity, restricted interests, for example) or maternal factors (use of gestures, type of language used during child interactions, depression, parent-child interaction stress) contribute to a child's use of gestures to communicate during play. Additionally, does the gesture use of a child at 24 months predict expressive and / or receptive language at 36 months after controlling for language at 24 months. Lastly the study will look at whether sub-group characteristics contribute to an understanding of gesture use in 24 month old children (gender, use of gesture with social reciprocity or gesturing only to self, mother’s responsiveness, SES, etc).

Assessing Cognitive Strategies During Reading by Combining Eye-Tracking and Functional Near Infrared Spectroscopy: A Proof of Concept Study

**Researchers:** Stephanie Juth, Vicki Simonsmeier, Ron Gillam
**Dates:** January, 2015 – May, 2016

Reading comprehension involves the multifaceted coordination of various reading competencies including decoding, word recognition, fluency, syntactic processing, and activation of prior knowledge. Behavioral measures of the components, however, does not necessarily explain the nature of the processes underlying poor reading comprehension. Eye tracking provides a window into the moment-to-moment comprehension process. Eye-tracking is has been used extensively across various populations of readers to evaluate a variety of reading tasks including reading comprehension. Few studies have used Near-Infrared Spectroscopy (NIRS) during reading tasks. Further, to our knowledge, no studies have employed both eye-tracking with the simultaneous use of NIRS in the study of reading. This study proposes an exploratory use of both of these technologies during a standardized reading task in order to assess the relationships between eye movements and neural activation patterns during reading comprehension in typical and impaired readers.
The Effect of *Food Sense Kids* on Preschool Students’ Vegetable Preference

**Researchers:** Hall Murphy, Kristin & Boyce, Lisa  
**Funding:** Undergraduate Research and Creative Opportunity/URCO, $865.60, 11/2014 to 06/2015

This study examined the effects of introducing healthy foods to preschool aged children, specifically those presented by the *Food Sense Kids* snack curriculum on children’s food neophobia, preferences, and knowledge.

Personal Vulnerability in University Student Parents: An Examination of Coping Strategies, Stressors and Depression

**Researchers:** Daines, Joanna & Boyce, Lisa  
**Dates:** 01/2015 to 8/2015

This study is an honor’s thesis focused on examining the hypothesis that student parents with high expectations who feel unable to meet their own expectations may fall prey to depression, parental stress, and the parent child interaction may become negative for the child. Interviews with ten mothers are currently being conducted, transcribed, and coded to gain a better understanding of the expectations they have for themselves, the stressors they face as parents and students and the coping mechanisms and resources they use to help them deal with these stressors.

Evaluation of Outdoor Improvements Using the Preschool Outdoor Environment Measurement Scale (POEMS)

**Researchers:** Boyce, Lisa; Sorenson, Chelsey  

This study evaluated the impact of improvements made to the outdoor environments on the quality of the physical environment, interactions among children and teachers, and play and learning settings.

Examination of Teacher Support of Peer Interactions between Typically Developing Peers and Children with Permanent Hearing Loss

**Researchers:** Boyce, Lisa; Sorenson, Chelsey; & Summers, Liberti

This study examined the frequency of interactions among children, language modeling provided by teachers, and level of children’s social play. Both teacher and children from the Dolores Doré Eccles Center for Early Care and Education and teachers of children from the Sound Beginnings program were observed.

Early Childhood Mathematics Development in Children who are DHH: Enhancing Parent Opportunities to Develop Foundational Math Skills

**Researchers:** Hess, Laura; Nelson, Lauri

Historically, children who are deaf and hard-of-hearing (DHH) have shown slower achievement than their same-aged hearing peers across academic domains, including math proficiency. In order to promote successful integration in a mainstream educational setting and minimize the risk of academic delays, it is essential that children are exposed to authentic mathematical concepts within their natural home environment as early as possible. This project focused on 1) best practices mathematics early education consistent with early childhood core standards, 2) practical strategies for improving math-based
experiences for children who are DHH, and 3) the positive effects of parent involvement. The project culminated in the development of age-appropriate math units that facilitated home-based math experiences for preschool children. Computational math units were given to parents for implementation and feedback. Parent feedback was received as a potential guide for product development and future revisions. This project resulted in math resources that facilitated parent-child learning opportunities to promote kindergarten readiness and improve math outcomes in children who are DHH.

**LENA Measurements of Language Facilitation Strategies Utilized by Parents During Storybook Reading**

**Researchers:** Nelson, Lauri; Peters, Shannon

Age-appropriate foundations for literacy development are universally regarded as priorities in early childhood special education. During early years of reading skills acquisition, parents play a vital role in establishing child engagement in the reading process to maximize learning opportunities for young children. Parent-child storybook reading provides opportunities for enriched language and reading comprehension interactions and promotes literacy development within the natural home routine. Although many parents enjoy the shared storybook engagement that comes with a nightly reading ritual, many parents are unsure about how to utilize effective reading strategies to maximize literacy growth in their preschool children who are DHH. Using Language Environment Analysis (LENA), and utilizing a single-subject design, this project explored the impact of a 20-min parent training on parent use of effective literacy comprehension strategies and child engagement during storybook reading.

**Self-Advocacy Skills of Children who are Deaf or Hard of Hearing: Teacher Perceptions in Preschool and Inclusive General Education Settings**

**Researchers:** Hendrix, Ariel; Nelson, Lauri; Parker, Elizabeth

This cross sectional survey study examined the self-advocacy skills of children who are DHH who attended a self-contained preschool or kindergarten classroom or an inclusive kindergarten or first-grade classroom. Participants responded to Likert-scale self-advocacy ratings and to open-ended questions regarding their perceptions of the self-advocacy skills of their students who are DHH.

**The Impact on Vocabulary Development in Children who are DHH when Music is Integrated into the Early Childhood Curriculum**

**Researchers:** Smith, Lauren; Nelson, Lauri; Martin, Nicole

The systematic use of music as an instructional strategy for enhancing vocabulary development for children who are DHH has not been widely studied. Although music is often included in the typical preschool day, many teachers view “music time” separately from the academic curriculum. In a 6-week time series study, the use of music elements embedded within and throughout the preschool curriculum to support and enhance expressive and receptive vocabulary was evaluated. In addition to commercially available preschool music supports, original songs were developed utilizing targeted vocabulary words. Pre- and post- curriculum-based vocabulary assessments were developed and administered weekly.
A Survey of Communication, Academic and Social Experiences of Cochlear Implant Users

Researchers: Nelson, Lauri; Herde, Lindsey, Munoz, Karen; White, Karl; Page, Michael

Numerous researchers have documented the benefits of cochlear implants (CIs) to improve the listening and spoken language opportunities for individuals with severe or profound hearing loss. However, controversy still exists, with reports from some groups that CIs may cause harm and may be ineffective to users over their lifespan. However, few studies have directly investigated the views and experiences of CI users to identify their opinions concerning their communication, academic, and social successes and challenges. Surveys were sent to adult cochlear implant recipients and parents of children with cochlear implants.

Parent-Child Book Reading: Using Home Literacy Units to Foster Language Development in Children who are DHH

Researchers: Fryer, Sydney; Nelson, Lauri

Children who are deaf and hard of hearing (DHH) are at risk for delays in language and literacy and benefit from rich language opportunities with parents and families in the home. Parent-child book reading promotes language and vocabulary development in children through word-object associations and expanding vocabulary. Additionally, parent-child book reading is enhanced when parents are taught how to use engaging book reading techniques with their children. While many studies have evaluated parent-child book reading, few have focused on children who are DHH or sought to develop materials and books specific to children who are DHH. This project resulted in the development of parent/family-focused literacy units that facilitated language and vocabulary development in young children who are DHH, including suggested strategies for development of listening and spoken language.

Embedding Language in Snack for Children with Disabilities

Researchers: Waldron, Alicen; Nelson, Lauri

A language-rich environment throughout the preschool day is essential for children with disabilities. Although snack time often is seen as important for meeting hunger and nutritional requirements for children, it also provides an ideal opportunity for language, vocabulary, literacy, and general academic enrichment using high-interest materials. The purpose of this project was to create a useful and practical resource for special education teachers to use to enhance instructional time during the snack period. Creative or extensive thematic snack projects were included, however, the resource primarily focused on language and academic-rich snack activities that utilized realistic time and funding requirements.

Evaluation of Child Preferences for Adult Narrator or Child Narrator on Reading for All Learners iPad App

Researchers: Brown, Michelle; Callow-Heusser, Catherine; Nelson, Lauri

Previous research has found that engagement is key for the success of early readers. There is not sufficient previous research to show how best to engage early readers, particularly with mobile technologies, and almost none on the engagement of those with
hearing loss. Electronic and mobile devices have been used in previous research to increase the engagement and success of students. The Reading for All Learners beginning reading curricula iPad application was adapted to include child and adult narrators and multiple modes of access to sound. For this research, differences in engagement of children with and without hearing loss were investigated when reading using an iPad with synched narration using (a) adult and (b) children’s voices. Additionally, differences between the engagement of children using a reading program on mobile technology and using a print book were examined.

The Language of Mathematics: Early Childhood Mathematics for Children who are Deaf or Hard-of-Hearing and the Role of Parental Involvement

Researchers: Carlton, Alexandra; Nelson, Lauri
To support the unique needs of children with hearing loss, data are necessary to identify strengths and weaknesses in mathematics education during the formative early learning years. This educational project examined mathematic common core standards in the early childhood curriculum necessary for kindergarten readiness and explored the impact of parental involvement in early mathematics education. This project included development of materials for parents to utilize within the home environment to support language-based mathematics development in their preschool child with hearing loss. The project will also obtain parent feedback describing the usefulness of the materials and the perceived impact on their child’s mathematic growth. Furthermore, descriptive data concerning parent’s perception of the benefits of utilizing at-home materials were evaluated utilizing survey and narrative data completed by parents.

Parent Support Programs to Facilitate Language During Natural Home Routines for Children 0-5 who are DHH

Researchers: Abraham, Carolle; Devey, Ali; Nelson, Lauri
This project will organize a parent night to provide support, information, skills, and materials for families of children who are deaf and hard of hearing. This support night will provide an opportunity for professionals to share valuable information to parents, for parents to provide valuable insight to professionals and other families, to provide an opportunity for families of children with hearing loss to connect, and to reinforce strategies and best practices to promote the optimal environment for accessing sound and developing listening and spoken language.

Improving Paraprofessional Training to Support Preschool Teachers in Special Education and Deaf Education

Researchers: Mitchell, Jennifer; Nelson, Lauri
There is a shortage of well-qualified and trained paraprofessionals who support teachers of children who are deaf or hard of hearing. This project will expand current training modules for paraprofessionals and provide additional materials that focus on strategies that paraprofessionals can use in the classroom to optimally support classroom instruction.
Environmental Analysis of Adult/Child Response Ration During Selected Instructional Activities in Preschool and Toddler Group

Researchers: Mulder, Melissa; Nelson, Lauri; Martin, Nicole; Devey, Ali
Using Language Environment Analysis (LENA), this project will explore adult/child talk time ratios during selected instructional activities in the preschool and toddler group classrooms. Implications for young children to access optimal opportunities to develop expressive language and utilization of adult wait time will be explored.

Support Materials for Participation in Tele-Intervention Services for their Child who is DHH

Researchers: Barker, Shayla; Nelson, Lauri; Behl, Diane
Tele-intervention services for families of young children who are deaf or hard of hearing can provide a valuable method of service delivery to accommodate parent schedules, to improve services to families in rural areas, to reduce service delivery costs, and to promote a model of parent coaching for better generalization of strategies into the natural family routine. This project will support development of parent materials to better prepare for home intervention services utilizing tele-intervention service delivery.

Social/Emotional Skills of Children who are DHH

Researchers: Miller, Leia; Nelson, Lauri; Nicole Martin
Research findings are mixed concerning the social-emotional development of young children who are deaf or hard of hearing (DHH). Furthermore, few resources are available to educators to correlate social-emotional skill development with early learning guides or state early childhood core standards. This project will develop a social-emotional guide specific to children who are DHH to guide documentation of social-emotional development, including intervention recommendations within the preschool curriculum.
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