Description of Postdoctoral Research Training Program in Language and Literacy

Funded by: Institute of Education Sciences (National Center for Special Education Research)
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Children’s Learning Institute (CLI), University of Texas Health Science Center (UTHealth)

Large gaps still exist in our understanding of effective intervention approaches to better assure optimal education experiences in preschool and school-age children and youth who are at risk for difficulties in acquiring language and literacy skills. Researchers at the CLI provide an integrated and seamless set of training opportunities for postdoctoral fellows, addressing the many aspects of exploration, development, assessment and intervention research in language and literacy from the preschool years into high school. The CLI provides models for team-based research in education in which researchers and educators bring together their skills to address important intervention and assessment issues in special education. Because of our expertise in efficacy research, professional development models, curriculum development, assessment, bilingual education practices, approaches for scaling up effective interventions, and methodology, CLI provides a strong training environment for postdoctoral fellows.

General Structure of the 2-Year Training Program

To provide in-depth training to prepare individuals for independent research careers, we have a two-component training program. In Component I, fellows immediately begin work on a project where data have been collected to provide timely mentoring on data analysis and publication. In Component II, fellows work on an ongoing grant that has room to add original research conceived of and carried out by the fellow. Components I and II occur concurrently and are carried out for the duration of the fellowship. Care is taken to link these two training components so that there is continuity (e.g., content area, design) between components that provide synergy for grant writing. Because the 2-year fellowships are awarded annually, IES postdoctoral fellows overlap with one another, and they participate in training activities together and potentially with other postdoctoral associates at the CLI and fellows in other departments of UTHealth.

Components of the Training Program at CLI

Structures contributing to training are presented below. Considerable infrastructure and faculty resources are devoted to mentoring fellows in producing first author publications and in writing their first grant application given that grant writing is important for retaining highly qualified research personnel in the transition from postdoctoral fellow to successful junior faculty (Reynolds et al., 2007).

1. Individualized Training Plans (ITPs)

We will tailor postdoctoral mentoring plans to meet the needs of individual trainees. However, there are general principles and procedures that will apply to all plans:

- Plans will contain a clear statement by mentors as to their roles and responsibilities including, but not limited to, meeting to discuss research plans and findings, research publications and grant preparation, career goals, and strategies for advancing the fellow within the scientific education research community.
• Mentors will state their personal mentoring approaches including information about meeting frequency

• Trainees will collaborate with their mentor(s) and the training directors as required, to craft an ITP that lays out milestones or goals that allow fellows and mentors to track progress and adjust plans as needed on at least a quarterly basis. Depending on the trainee and stage of training, these goals could include: advanced study of topics in methodology/statistics or other training such as progress monitoring by enrolling in or auditing a graduate-level course, attending a summer institute, workshop, or webinar; writing a paper for publication using archived data (Component 1); writing the Aims and Hypotheses sections for a fellow-initiated research proposal, and so forth.

At a minimum, trainees are expected to meet the following milestones:

i. First/primary authorship of two papers each year with secondary authorship on one or more papers strongly encouraged

ii. Presentation at one conference other than the IES conference each year where it is expected that trainees will use their conference presentations as the basis for writing a peer-reviewed paper

iii. The completion of an IES grant proposal for the closest submission date before the end of their fellowship. For the important process of grant writing mentors and trainees will make explicit a schedule of milestones including aims and hypotheses, budget and budget justification, background and significance, research plan/methods, etc.

2. CLI-Specific Training in Problem Solving Research and Grant Writing

• Research Working Group. In monthly meetings research at any stage of development is presented for group brainstorming/problem solving and to promote the formation of research teams around common areas of interest. This forum provides a relatively informal means by which fellows can present their research ideas, research design, or findings for feedback in a small collegial atmosphere. This group will also be used for reviewing the fellows’ research proposals prior to submission to a funding agency.

• CLI Distinguished Speakers Series. The CLI sponsors speakers to talk and also meet with fellows and CLI staff. Fellows serve on the organizing committee and host one speaker of their choice each year.

• Training in Research Design and Statistical Analysis: Data Analysis Working Group (DAWG): Fellows will gain experience and training in education research methods and analyses through the in-house support provided by the DAWGs, led by Dr. Jeff Williams. Contextualizing design and statistical issues through immersion in the process of grant writing is the optimal means for fellows to become proficient and knowledgeable about what techniques to use in their research and how to make effective use of statistical expertise and consultation. This training will be provided in several ways including: 1) shadowing by the trainee of one of the core DAWG consultants as they meet with CLI faculty who are writing papers or research proposals; 2) similar meetings between the fellow and DAWG consultants to help work through design and statistical issues in their own research and for their own grant writing.
3. UTHealth Postdoctoral Training Program

The Office of Postdoctoral Affairs provides additional training and support to postdoctoral fellows across the university. This certificate program offers a curriculum covering topics including: mentoring and being mentored, research ethics, grant writing, teaching and presentation skills, organizational skills, applying for a faculty position, creating a lab and managing research, and cultural sensitivity in research.

4. Additional Training in Research Methods and Statistics

Because not all of the training in education research methods and statistics that some fellows may require can be provided in-house by faculty associated with the DAWGs, ITPs may include IES-sponsored summer institutes, statistics short courses offered by private institutions, and research methods and statistic courses offered by UTHealth or other local universities.

Roles of Training Directors

The training directors ensure that fellows have an ITP and they provide oversight, in collaboration with mentors and fellows, as to whether milestones are being met. ITPs are meant to provide guidance that meets the needs of the fellow without being overly prescriptive or constraining. Training directors are also responsible for ensuring fellows have information about training opportunities within and outside the university, arranging a faculty committee that reviews the fellow’s written research proposal and provides feedback for improving the proposal prior to its submission to a granting agency, assisting fellows with job applications, coaching for job talks, and mentoring in negotiation related to job offers.

Training Strands, Potential Mentors and Projects

Postdoctoral fellows may choose to concentrate on one of two strands:

1) Exploration, development, and intervention research aimed at improving language and emergent literacy skills among at-risk preschoolers

2) Exploration, development, and intervention research aimed at improving language and literacy among school-age children and youth with disabilities.

There are opportunities for fellows to work across strands; however, in order to make the most of the 2-year training program, we will ensure that sufficient depth of training is preserved. For example, a fellow might train on a pre-Kindergarten project where language comprehension is an important focus and also on a school-age project with a similar focus, providing training in one domain that cuts across the transition from pre-Kindergarten to the early school grades. In both strands, fellows have the option to work on projects in which English Language Learning is either an explicit focus or is part of the broader project. Projects in both strands tend to involve collaborations among faculty at CLI and elsewhere, so fellows may receive informal mentoring from faculty who are not their primary mentors. Most projects are interdisciplinary in nature and some involve multiple sites, which provide fellows opportunities to gain expertise and experience with project organization, communication, data transfer and sharing, and publication issues unique to complex multi-site, interdisciplinary research. Similarly, there is opportunity to
obtain training in a collaborative research model that includes academicians, practitioners, and educational policy leaders, which are important aspects of several CLI projects.

**Strand 1 Project Opportunities: Improving Language and Literacy among At-risk Preschool Children.**

Our training milieu for early childhood education is well established with high visibility. The CLI houses the State Center for Early Childhood Development, which helps ensure that educational practice in Texas’ pre-K classrooms is grounded in scientific research. CLI also houses the Head Start Collaborative for the state of Texas. As such, an expansive network of strong relations exists among the CLI, early childhood education programs across the state, and stakeholders in early childhood education. This creates a rare opportunity to experimentally study systems change that is relevant to local, state and federal policy. Several projects in Strand 1 focus on evaluation of intentional instructional practices, responsive teaching approaches, professional development activities, and factors relevant to the education of English language learners. Training in this strand includes opportunities to work on the following projects:

a. *Improving School Readiness through High Quality Instructional Strategies and Responsive Training for Teachers and Parents:* Whether the combination of proven interventions for preschoolers, one in the home (training in responsive parenting approaches), and one in the classroom (intentional instructional practices + training in responsive teaching), is more effective at increasing school readiness than either intervention alone (Landry, IES).

b. *Professional Development Model for Migrant Head Start:* Testing of a professional development model for Migrant Head Start teachers across four states to address the unique instructional needs of language minority children (Landry & Solari, DHHS).

c. *Texas Pre-K Dual Language Learners Project:* Development and testing of dual-language programs in pre-K that use intentional instructional practices and responsive teaching approaches, including multi-tiered bilingual instruction following a Response to Intervention (RTI) framework (Zucker & Solari, TEA).

d. *Pre-K Curricula: Outcomes & Developmental Processes:* Impacts on school readiness and achievement from an integrated language/literacy and mathematics curriculum based on empirically tested academic interventions comparing teacher training in responsive interactions versus training in explicit social skills curriculum (Landry & Zucker, NICHD).

e. *Promoting School Readiness through Raising a Reader and Family Nights Programs:* Statistical modeling of longitudinal relations among language, phonological, and emergent literacy skills in monolingual and bilingual preschool children (Anthony, WKKF).

f. *Longitudinal Evaluation of an Integrated Pre-K Curriculum for ELL Teachers & Students:* Small-group intervention for young children in dual language pre-K classrooms who are at high risk for disabilities in language and reading (Landry, IES).

g. *Development of the School Readiness Curriculum Based Measurement System:* Development, scaling, equating and validation of English and Spanish versions of a computerized progress monitoring tool for children aged 3 to 6 years. (Anthony, IES)
Stand 2 Project Opportunities: Improving Language and Literacy among At-risk School-age Children and Youth.

CLI houses researchers who have considerable expertise in assessment, curriculum development, prevention, intervention, and professional development as they relate to improving the oral and written language skills and achievement of school-age children and adolescents. Training available in this strand includes opportunities to work on the following projects:

a. **Texas Center for Learning Disabilities: Tier 2 & 3 Early Intervention for Young Children at Risk for Reading Disabilities**: A randomized study of Tier 2 and 3 interventions for children in grades 1 and 2 who demonstrate lack of responsiveness to previous high quality reading programs: (Denton, NICHD National Learning Disability Research Center)


c. **ICard: Interventions for Children with Attention and Reading Disorders**: A randomized study of the effectiveness of treatments for children with both ADHD and severe reading difficulties (RD), comparing (a) carefully monitored stimulant medication + behavioral parent training, (b) intensive individualized reading instruction, and (c) the combination of ADHD and RD treatments (a + b) (Denton, NICHD)

d. **Development of a Small Group Intervention in Decoding and Listening/Reading Comprehension for At-Risk First Grade Children**: The development and piloting of a small group integrated intervention in decoding and comprehension for 1st grade children at risk for serious reading difficulties (Denton & Solari, IES)

e. **Exploration of Malleable Text, Cognitive, and Motivation-Engagement Processes in Struggling Comprehenders in Middle and High School Students and Development of Innovative Interventions**: A study of reading comprehension in middle and high school students that: a) investigates what text processes (e.g., inference making), general cognitive processes (e.g., memory and attention), and motivational/engagement factors are associated with both skilled and less skilled reading comprehension in older students; b) uses this information to test for malleability of these comprehension-related factors; and c) uses data from these underlying cognitive processes studies and experiments on malleable factors to develop innovative curricula and instructional approaches (Denton, IES Reading for Understanding Initiative)

f. **Neural Correlates of Reading Comprehension in Typical and Struggling Readers: A Multimodal Neuroimaging Study (NICHD)**. As part of a larger Program Project Grant funded 2011-2016 designed to identify responders vs non-responders to a reading intervention in grades 4-6, advanced neuroimaging of children before and after the school-based intervention will inform us of structural changes (DTI and structural MRI) underlying adequate (and inadequate) response to the intervention. Additionally, task-related fMRI during sentence comprehension and executive function will inform us of
activity in functional networks impacted (or not impacted) by the intervention in responders vs non-responders. Dr. Juranek is PI of the Neuroimaging project (e.g. Project 4 of the PPG).

g. **Enhancing Early Learning for Infants with Disabilities: A Responsive Parenting Intervention**: A randomized controlled trial to test the efficacy of the Play and Learning Strategies to Enable Children with Motor Difficulties (PALS-Enable) intervention which integrate parent responsiveness and motor supportive behaviors, to the Play and Learning Strategies (PALS) intervention that focuses on responsiveness only, and a control group receiving developmental information only among infants with special needs including spina bifida and cerebral palsy. This study will evaluate the interventions effectiveness by examining its impact on child core skills (motor learning, attention, goal directed play) and outcomes (cognitive, language, emotional competence, and social competence) (Taylor, IES).

h. **Texas Kindergarten Entry Assessment**: Development, scaling, and validation of English and Spanish versions of a comprehensive assessment for entering kindergarteners, along with integration of assessment results with Texas Education Agency’s longitudinal data tracking system (Landry, Anthony, Williams, Zucker, & Assel, IES).

**Short Bios of Potential Mentors**

**Jason Anthony, Ph.D.**, is an Associate Professor and Director of Training for the IES postdoctoral fellowship. He completed coursework and internships for advanced degrees in clinical child psychology and school psychology, a fellowship in multidisciplinary approaches toward research and intervention for developmental disabilities, and postdoctoral training in research methods and statistics. Areas of expertise include emergent (bi)literacy, learning disabilities, assessment, school- and home-based interventions, program evaluation, and application of advanced statistics to educational research. Dr. Anthony’s research focusses on early identification and prevention of reading disabilities in children at-risk because of conditions associated with poverty, minority status, and learning English as a second language.

**Susan H. Landry, Ph.D.**, holds titles of Distinguished Professor, Director of the CLI, and Co-Director of Training for the IES postdoctoral fellowship. She oversees numerous federal, state, and foundation funded research projects and training activities. Much of Dr. Landry’s research concerns evaluation of interventions and professional development models in early childhood. Areas of expertise include curriculum development and use of technology in teacher professional development. She has supervised 17 postdoctoral fellows since 1991. Over half are in academic and research positions in developmental psychology, pediatric psychology, and education. She has mentored junior faculty who are currently PIs of their own projects.

**Carolyn Denton, Ph.D.**, is a Professor with a doctorate in Educational Psychology. Her expertise is in interventions for the prevention and remediation of reading disabilities; the identification of students with learning disabilities; the role of the reading coach in professional development; and the process of bringing research-validated educational practices to wide scale implementation. She also has experience in the development of reading curricula. She is the
author of a published approach to early reading intervention that has demonstrated efficacy and effectiveness in randomized trials.

**Jenifer Juranek, Ph.D.**, is an Associate Professor with a neuroscience background ranging from cellular, synaptic, and network levels of brain-behavior investigations. Over the last 13 years, Dr. Juranek has developed expertise in multimodal neuroimaging (MRI, DTI, MEG) in pediatric populations with developmental or acquired disorders of the brain. Dr. Juranek currently supervises 2 postdoctoral fellows, 1 international student on scholarship, and 1 graduate student research assistant.

**Heather B. Taylor, Ph.D.**, is an Associate Professor with a joint appointment at TIRR Memorial Hermann. She received her doctorate in psychology with advanced training in rehabilitation and neuropsychology. She has a 10-years history of carrying out federally-funded research in the area of adults and children with neurodevelopmental and physical disabilities. Much of her research is on the testing of interventions and cognitive and psychosocial outcomes related to at-risk and disability.

**Tricia Zucker, Ph.D.**, is an Assistant Professor with a doctorate in Curriculum, Instruction, and Special Education. Her expertise is in language and literacy interventions for the early prevention and remediation of academic difficulties; the role of the coaching in early childhood professional development; and comprehensive professional development approaches for teachers in dual language settings. She also has experience in the development of language and literacy curricula.

**Jeff Williams, Ph.D.** is an Assistant Professor and Director of the Data Analysis Work Group. With doctoral training as a social psychologist and quantitative psychologist, he has extensive experience in research design, data collection methods, and statistical analysis of educational data. Dr. Williams specializes in the application of multivariate statistical models to complex research questions. Areas of expertise include factor analysis and item response theory (IRT); structural equation modeling (SEM); and mediation and moderation, including their multilevel applications.

**General Information for Potential Applicants**

- We expect most applicants to have a doctorate in education or educational psychology; however, we will also consider fellows with strong backgrounds in other areas of relevance for education (e.g., developmental psychology, cognitive psychology, speech and language pathology, quantitative psychology, school psychology, etc.) who wish to combine their skills with the type of training CLI can provide to allow them to conduct high quality research in special education.
- We will consider applicants who have completed all requirements for their doctoral programs or who expect to complete all requirements for their program in the near future. Fellows must have completed all requirements for their doctorate prior to taking up the award.
- Applicants must be U.S. citizens or permanent residents
- Fellowships are for two years. Yearly salary is $52,500 plus benefits
- Funds are available for fellows to travel to conferences and workshops
- Funds are available to pay for research expenses associated with Component II training
- Applicants who are short-listed for interviews should expect to travel to Houston to interview and present a talk on their dissertation research. Travel expenses will be covered.
The process of matching fellows with Component II mentors will be completed before the fellow arrives.

**How to Apply**

1. Send one copy of your Curriculum Vitae and a cover letter to Jason Anthony at Jason.L.Anthony@uth.tmc.edu. The cover letter should describe:
   - your areas of competence in research including methodological and statistical training and content expertise
   - what areas of competence you would like to pursue through postdoctoral research training
   - your career goals
   - the CLI project(s) on which you are most interested in working.

2. Send sample publication(s) with your application documents.

3. Arrange for three letters of reference to be sent directly by the referees to Jason Anthony at Jason.L.Anthony@uth.tmc.edu or mailed to Jason Anthony, Ph.D., Children’s Learning Institute, University of Texas Health Science Center-Houston, 7000 Fannin Street, Suite 2377, Houston, TX, 77030. Two of these references must come from graduate advisors/mentors with whom you worked on research.

4. Completed applications must be received by December 6, 2013.