

GSU Postdoctoral Training on Adult Literacy: G-PAL

The Adult Literacy Research Center (ALRC) at Georgia State University (GSU) proposes a postdoctoral fellowship training program for individuals interested in conducting research on adult learners with low skills in reading and writing. For the purpose of this fellowship, *adults* include people 16-years old and older, who are struggling with literacy and who may be receiving services in secondary, postsecondary, or adult literacy programs. ALRC is an interdisciplinary center with faculty who conduct funded research and are uniquely prepared to train the next generation of adult literacy researchers in multiple content areas, population-specific nuances, advanced methodology, and the translation of research to practice/policy. As a result of this training, fellows will be prepared to conduct research on adult samples drawn from different education settings, to communicate across fields and with technical and nontechnical audiences, and to help inform policy and practice relevant to the large portion of the United States (US) population that struggles with basic literacy. Before addressing specific grants involved in this postdoctoral training program, we present a general overview of the need for an adult learner postdoctoral fellowship program.

Significance

College readiness has been declining, with postsecondary students' reading skills decreasing and almost 50% of college students not graduating (American College Testing, 2010, 2014, 2016; National Endowment for the Arts, 2007; U.S. Department of Education, 2008). Because reading is an important mode of learning in college, college success is highly reliant upon proficient reading skills (Hermida, 2009; Kim & Anderson, 2011; Taraban, Rynearson, & Kerr, 2000). In fact, reading skills have been found to be a critical predictor of retention after the first college year (Fike & Fike, 2008).

The prevalence of college students' poor reading skills is not surprising considering that, in the general US population, low adult literacy is a widespread problem. The most current survey of US adults (ages 16 and older) found that about 50% perform at extremely low levels. Specifically, 17% of US adults perform at the lowest level of the literacy scale (at or below Level 1 out of 5 levels), and 33% of adults perform at Level 2 of the literacy scale (Rampey, et al., 2016). In other words, 17% of adults have difficulty with most literacy tasks and/or can only read brief texts with simple vocabulary to locate one piece of information. The other 33% can paraphrase, make low-level inferences, and integrate two or more pieces of information, but they cannot perform more advanced literacy tasks. Thus, 50% of US adults have difficulty with or cannot read lengthy texts with advanced rhetorical structure and vocabulary, do not know how to search for or use information from different sources, and struggle to evaluate sources' veracity. In other words, reading is a barrier to most of their educational, occupational, and personal goals.

Some adults who have low skills in reading and writing attend classes in adult education programs, which consist of Adult Basic Education (ABE), Adult Secondary Education (ASE), and English Language Acquisition (ELA) classes. These programs help adults (defined as ages 16 and older) improve their reading, writing, math, science, and social studies skills with the culminating goal of obtaining a high school equivalency degree (U.S. Department of Education, 2014). Annually, federally funded adult education programs serve an estimated 2.6 million adults which represents merely a fragment of the nation's struggling adult population (Lesgold &

Welch-Ross, 2012). Still other adults (i.e., those 16-years old or older) with low literacy may be attending secondary schools or colleges, where they may receive services through developmental/remedial courses, reading and writing centers, or tutoring (Scott-Clayton & Rodriguez, 2015; Tinto, 2012).

However, without reliable and valid assessments, clear profiles of struggling adult learners, or an understanding of adult reading comprehension, programs cannot provide appropriate services or measure the usefulness of these services. There is a paucity of research on struggling adult readers and writers, and this shortage is striking, considering the prevalence of adult low literacy, the long history of federal funding for adult literacy programs, the reliance of colleges on developmental courses to remediate struggling college students (Lesgold & Welch-Ross, 2012), and the wide-ranging economic consequences of low literacy on health, crime, workplace productivity, and tax revenue (Vernon, Trujillo, Rosenbaum, & DeBuono, 2007). Without rigorous research to help guide instruction, assessments, or policy, adults with low literacy may continue to face difficult odds and society will continue to suffer from these human and economic consequences. To build this research base, **we need a new generation of highly skilled researchers with expertise in theory and methods who are well-rounded communicators and collaborators and are trained to conduct research on the struggling adult learner population in a wide array of education settings.**

How Training Can Help:

Develop Researchers with Expertise in Theory and Methods: In order for our fellows to be competitive researchers, they need both broad and deep knowledge about issues relevant to adult learners and about relevant, rigorous research methods and statistics. However, many graduate programs that focus on adult learners focus on preparing students to be education leaders (e.g., ED programs) and/or may not include intensive training in quantitative education research methods. At the same time, graduate programs that have such intensive quantitative training may not include graduate work that exposes students to adult learning theory or issues relevant to struggling adult learners. To ensure that our fellows have the knowledge, skills, and abilities in both of these domains, we will use a multi-pronged approach that includes courses fellows could audit, mentoring experiences with staff, and different research projects described in further detail in the application. All fellows will be expected to become experts in at least one relevant state-of-the-art statistical approach through auditing of coursework, attendance at specialized seminars/workshops, and practical expertise through their work on the research projects. In addition, our research projects involve a variety of methodological approaches including structural equation modeling, item response theory models, confirmatory factor analyses, latent class analyses, mixed methods, document analyses, focus groups and think-aloud procedures.

Create Well-Rounded Communicators and Collaborators: Increasingly, all education researchers are expected to ensure that their work is relevant to policymakers, practitioners, students, and families. However, many graduate programs do not provide experiences or training that helps hone the collaboration and communication skills that allows researchers to work with nontechnical/non-researcher audiences. In addition to the opportunity to work on Greenberg's Partnership Grant (between Georgia State University and the Georgia Office of Adult Education), all fellows in all grant activities will learn how to interact with non-researchers by

being invited to grant meetings with practitioners and policy makers, and by being expected to present at a practitioner/policy maker conference and by being expected to submit an article to a practitioner/policy maker journal. Fellows will also be expected to lead teams of undergraduate and graduate research assistants.

Our Training Program Goal: Through this postdoctoral training program, we will prepare researchers to conduct high-quality research relevant to improving the reading and writing skills of struggling adults. **Our fellows will develop both a broad and deep working knowledge** of the population, settings, and research issues relevant to the field, experience with advanced research methods and statistics, the capacity to work on and obtain research grants, and demonstrated ability to collaborate with and disseminate knowledge to a range of audiences (technical and nontechnical). With these skills, **our fellows will be well-prepared and highly competitive for jobs in education research including academic positions and non-academic positions** (e.g., contract firms, state education agencies). Our fellows will help to strengthen and develop an area of education research that has languished behind other areas, and their future work will provide much needed information to practitioners, policymakers, and researchers.

Training Program Framework:

Our postdoctoral training program addresses the dearth of adult literacy research by promoting a new generation of adult literacy researchers. To the best of our knowledge, this postdoctoral training program focusing on adults (16 years +) who struggle with reading and writing would be the first of its kind. We believe that our team is uniquely positioned to house this training program through our Adult Literacy Research Center (ALRC) at Georgia State University (GSU) <https://education.gsu.edu/research-outreach/alrc/>. Through our two-year fellowship program, four fellows will learn to conduct research in the area of adult learners with low reading and/or writing skills. Our fellows will get hands-on experience working on projects with diverse samples—including native and nonnative speakers of English, younger adults (16-24 year olds), older adults (through the age of 99)—and in diverse contexts—including secondary, college, and adult literacy settings. Fellows will also hone research skills in different methodological areas including exploration, development of curriculum, and measurement. In addition to academic contexts, the PI (Greenberg) has well-established strong connections with policymakers, practitioners, and learners. Consequently, the fellows will also have the opportunity to learn how to work with and disseminate information to non-researchers.

Training Program Focus:

Fellows in this postdoctoral program will have access to the following five research areas as they pertain to adults 16-years and older: assessment, reading comprehension, distinct student skill profiles, proficient academic reading, and writing. Many of the projects include an intersection of these areas, allowing our fellows to build expertise in multiple domains concurrently. Fellows will leverage existing interests (e.g., in comprehension) while deepening their understanding in another domain (e.g., writing) and honing their craft in authentic settings with understudied populations. All fellows, regardless of their primary interest, will advance their methodological/statistical skills and will also learn how to communicate with non-researchers. In other words, they will develop their knowledge, skills, and abilities in both theory and research methods and collaboration and communication.

Major Grants Associated with the Fellowship Program:

There are 10 grants that address our major content areas (See Appendix C for list of grants). Below, we describe each area, followed by a listing of specific training opportunities.

A. Assessment: There are two areas under assessment that our fellowship program covers: psychometric properties of tests and development of reading comprehension tests.

Need for additional research in psychometric properties of tests: As noted by a National Academy of Science report on adults with low literacy (NRC, 2011), we do not know whether the tests commonly used to measure underlying reading processes are reliable, valid, or function as intended for adults (Greenberg, Pae, Morris, Calhoun, & Nanda, 2009). These concerns are similar to general concerns about out-of-level testing—i.e., when one assesses a student on a test developed for students in a different grade (Minnema, Thurlow, Bielinski, & Scott, 2000; Salvia & Ysseldyke, 2004). Greenberg (PI) and her colleagues analyzed the quality of some norm-references assessments administered in her federally funded (NICHD, NIFL, OVAE) multi-year study of adults reading at the 3rd-5th grade levels. Reliability estimates for the CTOPP Blending and Elision subtests were lower for her sample than those values described for the normative group in the technical report (Nanda, Greenberg, & Morris, 2010). When the item-by-item responses of the adults on the Gray Oral Reading Test-Fourth Edition were analyzed, results indicated that 50% of the sample established a ceiling at story 1 but proceeded to establish a basal at or after story 3 (Greenberg, et al., 2009). Rasch analysis was conducted to assess person ability and item difficulty on the PPVT-III A (Pae, Greenberg, & Morris, 2012). Results indicated particular misfit items and provided evidence that the psychometric properties of some items were questionable. Finally, in the CTOPP study, some differences in reliability, item discrimination and item difficulty scores were noted across different age and native language status groups (Nanda, et. al., 2010). Findings such as these warrant a careful analysis of the tests administered to our adult participants.

Training program related grants for the area of psychometric properties of tests: We will provide fellows with opportunities to inform the development and validation of appropriate measures.

A1. Secondary Exploration of Measurement Data. Greenberg (PI) is the PI for the Center for the Study of Adult Literacy (CSAL) an IES-funded national research center on adult literacy (R305C120001, PI Greenberg, Co-PI Branum-Martin, I Li). Fellows will have access to CSAL's large dataset of item-by-item responses (both correct/incorrect and errors recorded by testers) to 37 reading related assessments administered to approximately 800 adults reading at the 3.0-7.9 grade levels. They can engage in research studies that answer important questions in the field of adult literacy assessment such as: (i) Do the items coherently measure a unitary trait in the manner intended? (ii) To what extent do some items exhibit unfavorable characteristics, such as extreme difficulty or a lack of sensitivity? (iii) To what extent do the items function in a way that is practical for test administration? By the time some of the fellows are hired, some of these questions will be answered for the entire sample. However, there will be many unexplored aspects of these questions to investigate with subgroup characteristics, e.g., English speaking status, age, and childhood educational attainment history. In addition, the item level errors will not have been analyzed and will be a great source for possible fellow independent research studies. Methodological skills that fellows can learn or improve include structural equation

models (Marsh, Hau, & Grayson, 2005; Marsh, Hau, & Wen, 2004), item response theory models (Hambleton & Swaminathan, 1985; Hambleton, Swaminathan, & Rogers, 1991), and confirmatory factor models for categorical data using Mplus (Muthén & Muthén, 2017).

A2. Exploration of an International Assessment of Adult Skills. Fellows will have an opportunity to analyze psychometric properties of the recent Programme for the International Assessment of Adult Competencies (PIAAC). This assessment includes a large, representative sample of US adults reading at low levels (total $N = 4,662$; 274 below Level 1, 1,336 at Level 1, and 3,052 at Level 2). Fellows can assist the researchers (R305A180299, PI Tighe) in using rigorous statistical methods to analyze this publicly available dataset to understand the psychometric properties of the PIAAC literacy and reading component skill scales and predictors of low literacy skills. Specifically, fellows can explore the dimensionality of the item structure and the reliability of scores from the literacy and component reading scales as well as identify potential risk factors (e.g., demographic, educational, work, and health-related characteristics, and engagement and interest in literacy activities) and create subgroup profiles of adults scoring at the lowest PIAAC literacy levels. Specific methodologies include item-level analyses (IRT, EFAs, CFAs, explanatory IRTs, bi-factor models) and multiple group level analyses using latent variables (CFAs, SEMs including mediation and moderation, and LCAs). Fellows interested in this opportunity will learn how to navigate a large-scale database, re-code variables, leverage codebooks, analyze datasets appropriately with replicate weights and plausible values in different programs (e.g., R, SAS, STATA, Mplus, IDB Analyzer), and write manuscripts.

Need for additional research in reading comprehension assessment development: Many of our research studies focus on reading comprehension. Thus, we place special focus on reading comprehension assessment development. Comprehension is a multifaceted task that is critical for both academic and workplace success (OECD, 2016). Unfortunately, a majority of US adults are not able to comprehend, integrate, and evaluate complex texts (NAEP 2015; OECD, 2016).

There has been recent and continuing pressure to develop reliable and valid measures to identify, diagnose, and address the needs of students who struggle with reading comprehension (Holschuh & Paulson, 2013; Koon & Petscher, 2016; McCormick, Hafner, & Saint-Germain, 2013; Reder & Bynner, 2009). Moreover, there are calls for measures to identify specific instructional needs leveraging cognitive processes of reading comprehension (Gorin, 2006). Developing measures to identify struggling adult students' cognitive processing will help tailor reading programs to be more efficiently tied to students' needs, thereby helping students make progress and persist through their academic trajectory (Thompkins & Binder, 2003). Existing reading assessments used with adults (e.g., Test of Adult Basic Education, Nelson-Denny, ACT, SAT) do not assess the cognitive processes that give rise to comprehension difficulty (Magliano et al., 2007). Therefore, there is a critical need to both create new measures and to analyze the reliability and validity of existing measures.

Training program related grants for the area of reading comprehension assessment development: We will offer postdoctoral fellows an opportunity to work on two different reading comprehension assessment development projects.

A3. Refining and Validating a Reading Comprehension Measure for College Students.

Fellows in the training program will have the ability to work on a research project (R305A180417, Co-PI Carlson) that focuses on refining and validating a reading comprehension diagnostic tool initially created and validated for third to fifth grade readers for use with postsecondary students. The aim of this project is to create a tool that will diagnose postsecondary students' reading comprehension problems. Fellows will learn how test items are iteratively created and validated with a sample of postsecondary students in 2- and 4-year postsecondary settings. They will learn statistical tools such as item response theory, choice theory, logistic models, univariate and multivariate analyses, and reliability/validity analyses. Fellows will be able to work with researchers on assessing the technical adequacy of the assessment tool, the launch of the assessment to the public, and help with the design of professional development or interventions needed for educators based on data that is collected. Fellows will also have the opportunity to participate in dissemination opportunities.

A4. Developing a Morphological Awareness Battery for Adults. There is an emerging research base noting the importance of morphological awareness to reading comprehension with struggling adult readers and adolescents (e.g., Tighe & Schatschneider, 2016; Tighe & Binder, 2015; To, Tighe, & Binder, 2016). In order to understand its relationship to reading comprehension with struggling adult readers, we must first analyze the construct validity of morphological awareness and develop and refine assessments of this skill with struggling adult readers. We know that, for dyslexics and poor readers, morphological measures can differ in terms of specific item level differences and/or more global dimensions of morphological awareness (e.g., Deacon, Parrila, & Kirby, 2008). We also know that, for young children, different morphological tasks are differentially predictive of comprehension skills (e.g., Apel, Diehm, & Apel, 2013). Adult literacy research has yet to tackle these issues. Fellows can become involved in a research study funded by NIH (R21HD095470, PI Tighe, Co-I Greenberg) to develop a morphological awareness battery and assess its test-retest reliability. They will be exposed to many methodological techniques—in particular specific to measurement and assessment building (IRT: traditional framework as well as explanatory IRT), latent variable modeling (CFAs, SEMs) and many statistical programs (e.g., R, SAS, SPSS, Mplus).

B. Comprehension: Although, there is a general paucity of research in the area of adult literacy, there is a small but rich literature on the underlying word reading skill processes of struggling adult readers (e.g., Greenberg, Ehri, & Perin, 1997, 2002; MacArthur, Konold, Glutting, & Alamprese, 2010; Mellard, Fall, & Woods, 2010; Sabatini, Sawaki, Shore, & Scarborough, 2010). There is not, however, a strong research base in the area of comprehension. There are three areas under comprehension that our fellowship program addresses: multiple text comprehension, morphological awareness, and how readers construct meaning during reading.

Need for additional research in multiple text comprehension: With the rise of the information age, people must be even more able to read and reason across multiple texts (Goldman, 2004; Goldman et al., 2016; Salmerón, Strømsø, Kammerer, Stadtler, & van den Broek, 2018). To effectively use multiple documents, one must generate intertextual inferences that connect information from across different texts. This skill has received relatively little research focus. Thus, we know little about when intertextual inferences occur and how they can be facilitated (e.g., Braasch & Bråten, 2017).

Need for additional research in morphological awareness: When researchers explore the processes underlying reading components that impact struggling adult reading comprehension skills (e.g., Braze, Katz, Magnunson, et al., 2016; Braze, Tabor, Shankweiler, & Mencl, 2007; Nanda, et al., 2010; Sabatini, et al., 2010), they mainly focus on subcomponents highlighted in the Simple View Reading framework and ignore other important components such as morphological awareness. Morphological awareness is beginning to rise as an important predictor of comprehension with struggling adult readers indicating a unique role for morphological awareness beyond oral vocabulary and decoding (Tighe & Schatschneider, 2016; Tighe & Binder, 2015; To, Tighe, & Binder, 2016). However, the studies that have included morphological awareness with struggling adult readers have not focused on the dimensionality of morphological awareness and have primarily included it as a unidimensional construct. Research conducted on adolescents indicates that morphological awareness may be multidimensional instead of unidimensional (e.g., Goodwin, Petscher, Carlisle, & Mitchell 2017; Keiffer, Petscher, Proctor, & Silverman, 2016).

Need for additional research in how readers construct meaning during reading: Measuring text comprehension is a challenging task. Comprehension assessments typically ask readers to reflect on what they have already read. While this is efficient for measuring recall and recognition, it does not uncover the underlying cognitive processes that take place while reading that are essential for comprehension (Magliano, Millis, Ozuru, & McNamara, 2007). Readers' verbal protocols (e.g., think alouds and self-explanations) reflect the processes they engage in during reading, the strategies that they use, and the inferences that they generate (McNamara & Magliano, 2009; Millis & Magliano, 2012). Thinking aloud involves stating one's thoughts while reading, and self-explanation is explaining text to oneself. While these two methodological approaches are commonly conducted in studies with children, there is a scarceness found in use of these approaches with struggling adult readers. Moreover, there have been recent advancements in developing computational approaches to analyze student constructed responses (e.g., Magliano & Millis, 2003; Magliano, Millis, the RSAT development team, Levinstein, & Boonthum, 2011). There is a need to explore the utility of these approaches for understanding struggling college readers. Investigating 1) how different manipulations and individual difference affect the quality of the verbal protocols that readers generate during reading and 2) how the nature of these verbal protocols relate to reading comprehension outcomes can help with future design of, just-in-time interventions for struggling adult readers.

Training program related grants for the area of reading comprehension: We will offer postdoctoral fellows opportunities to work on three different types of reading comprehension related projects.

B1. Exploring Inference-Making. When individuals read multiple documents, they need to be able to make both intratextual inferences (within a text) and intertextual inferences (across various texts) (e.g., Strømsø, Bråten, & Samuelstuen, 2008). In an IES exploration project, Magliano and McCarthy (R305A180144) are studying how different comprehension strategies affect intratextual and intertextual inference-making. Fellows engaged in this project will gain experience in lab-based and classroom-based research. They will learn how to administer and analyze open-ended responses such as verbal protocols, integrative essays, and short answer questions. Fellows will learn how to use natural language processing (NLP) and discourse

analysis to analyze these open-ended responses. They will also learn how verbal protocol, eye tracking, and telemetry data can be used to triangulate underlying processes and strategies related to reading and writing tasks. Finally, they will be involved in a small-scale classroom study to examine the effect of a multiple document comprehension intervention. Data analytic approaches include ANCOVA, HLM, and Growth Modeling.

B2. Examining the Role of Morphological Awareness. As already mentioned, there is not a strong research base on the role that morphological awareness plays in the reading comprehension processes of struggling adult readers. In the NIH funded project referenced above in item A4 (R21HD095470, PI Tighe and Co-I Greenberg), fellows can examine the role morphological awareness plays in extending the Simple View of Reading for adult literacy students in comparison to more proficient college students. Fellows will have an opportunity to engage in analyzing predictive models of reading comprehension (SEMs including multiple group, mediation, and moderation techniques).

B3. Exploration of Coherence-Building Processes. Fellows will have an opportunity to work with Magliano and McCarthy on their secondary analysis of nearly 15 years of archival data with struggling high school and college students (R305A190063). In this work, fellows will examine how verbal protocols, or constructed responses, reflect important coherence-building processes involved in reading. Fellows will have an opportunity to analyze linguistic and semantic properties of constructed responses and how these properties relate to comprehension outcomes. The research team is refining computational approaches for detecting these processes for use in large-scale studies involving constructed responses and other standardized assessments that characterize the challenges faced by struggling college readers. The research uses natural language processing tools and dynamical systems theory approaches (e.g., recurrence quantification analysis) to reveal novel findings about how reading comprehension processing unfolds and changes over time. Postdoctoral fellows can collaborate with the investigators on developing and using the algorithms. This will involve managing a team of raters (graduate and undergraduates across our multiple sites) who will need to refine a coding rubric and establish reliability. They will also have the opportunity to use a suite of natural language processing tools to conduct both inferential statistics and potentially some machine learning-based investigations.

C. Distinct Student Skill Profiles:

Need for additional research in distinct student skill profiles: Understanding whether there are identifiable profiles of distinct skill sets within the adult struggling reader population would indicate whether subgroups of adults may benefit from differentiated instruction. Research with adolescents shows distinct profiles (e.g., Brasseur-Hock, Hock, Kieffer, Biancarosa, & Deshler, 2011; Clemens, Simmons, Simmons, Wang, & Kwok, 2017). Preliminary evidence suggests the existence of distinct profiles of adults based on individual differences in reading component skills (Binder & Lee, 2012; MacArthur, Konold, Glutting, & Alamprese; Mellard, Fall, & Mark, 2009); however, these studies relied on simple analyses such as cutoff scores or analyses which require normally distributed data (not ubiquitous in struggling adult reader populations). In addition, these studies did not include a comprehensive array of potentially malleable variables (e.g., oral language skills, inferencing ability, domain knowledge, engagement and motivation variables, reading and writing behaviors, technology skills) along with the component skills.

Training program related grants for the area of distinct student skill profiles: We will provide fellows with various opportunities to explore distinct student skill profiles.

C1. Creating Profiles Using PIAAC Data. In the grant referenced above in item A2, fellows will be able to assist the researchers (R305A180299, PI Tighe) in utilizing rigorous statistical methods to analyze this data in order to explore distinct subgroup profiles for low-skilled adults on the PIAAC literacy and component reading skill scales. Fellows will learn how to utilize latent class analyses and mixture structural equation modeling to represent the inherent heterogeneity of the low-skilled adult sample and to identify latent classes (or profiles of risk factors) of these adults based on an extensive background questionnaire, which includes demographic, educational, work- and health-related variables, and engagement and interest in literacy activities. In addition, fellows will help investigate whether demographic characteristics, work- and health-related questions, and engagement and interest in literacy activities moderate the relations between component skills and overall literacy skills.

C2. Creating Profiles Using CSAL Data. In the CSAL (grant R305C120001, PI Greenberg, Co-PI Branum-Martin, I Li) referenced above in item A1, a reading intervention was developed, administered, and compared to a “business as usual” group. Fellows will be able to explore unique profiles of skill sets of 542 adults who read between the third and eighth grade levels and investigate whether these profiles have different instructional gain profiles. In analyses already conducted, we found profiles based on 10 assessments of lower-level and higher-level competencies and instructional gain profiles based on incoming decoding levels. We also conducted profiling analysis on CSAL’s web-based instructional program and uncovered different profiles based on accuracy and speed of responses to computer driven questions and found these differences to be related to comprehension scores. Other profiling remains to be completed, and interested fellows may explore additional profiles such as those based on demographic characteristics (e.g., English-speaking status, age, and high school attainment). Fellows will be exposed to different profiling approaches such as cluster analysis and latent class analysis.

D. Proficient Academic Reader:

Need for additional research in proficient academic readers: Due to the large numbers of college students who need remedial assistance to be successful (e.g., American College Testing, 2010), we must unpack which underlying skills are necessary for college-level reading.

D1. Postsecondary Academic Reading Proficiency. A project on struggling college students (R305A150193, Magliano PI) developed a model of self-regulatory and academic skills, and fellows can help analyze whether the model predicts performance in academic literacy tasks and general academic performance across a range of ability levels, whether the skills are malleable factors that can be influenced through instruction, and whether development of these skills predict future academic performance. Through this project, fellows will become acquainted with the Reading Strategy Assessment Tool (RSAT), an automated computer-based test co-designed by mentor Magliano. The RSAT assesses students’ reading comprehension and use of reading strategies. Fellows will use confirmatory analyses, latent variable growth modeling, hierarchical linear modeling, and structural equation modeling as analytic tools. They will also

be exposed to survival analyses to explore whether the specified skills predict increased probability of retention in college. The planned studies for this project will be completed by the start of this training program. However, the data collected will provide an archival database to explore a variety of questions regarding college readiness. For example, a large subgroup in the sample are English Language Learners (ELLs). The postdoc fellows could develop and conduct new studies involving the whole sample or look specifically at ELLs.

E. Writing:

Need for additional research in writing: Adults who struggle with reading are likely to struggle in other domains such as writing. Writing is an essential component of adult workplace and personal life (Feinberg, Tighe, Talwar, & Greenberg, 2019), and is a strong predictor of academic and workplace achievement (Geiser & Studley, 2002; Light, 2001; Powell, 2009). Unfortunately, according to the 2011 National Assessment of Educational Progress (NAEP), 21% of US high school students graduate with lower than basic academic writing proficiency.

E.1 Developing a Writing Assessment Tool: Crossley and others (R305A180261) are developing and testing an on-line tool (called the Writing Assessment Tool) that produces analytics of students' writing. Fellows will learn how a tool is iteratively developed and tested. The development includes creating and testing a user interface with an underlying natural language processing algorithm that identifies patterns and structure of student writing. The tool will provide feedback on persuasive, summary, source-based, and integrative essays. If fellows are interested, they can use the tool to conduct computational analyses of writing. Methodologically, fellows will learn how to conduct focus groups, as well as usability and feasibility studies. They will learn data mining techniques which focus on analyzing log data (such as keystroke logs) to examine patterns of usage. Fellows will focus on data that is collected on struggling high school and college writers. They will help with the scoring of writing samples, assist in the use of natural language processing tools to examine the text features of the essays, conduct analyses to compare writing samples from adult literacy populations to other populations and help to develop automated scoring algorithms specific to adult literacy populations which could lead to the development of adult literacy writing interventions.

Additional Grant-Related Activities:

In addition to the above activities, fellows will obtain additional research and professional experiences through activities at the Adult Literacy Research Center.

Additional Assessment Work. Greenberg is the GSU PI for an IES Measurement grant that focuses on developing and validating a web-administered reading assessment for struggling adult readers (R305A160129). This grant meets the need to have computer-delivered, norm-referenced tests that will “conceptualize and develop multidimensional measures in tandem with the development and testing of integrated reading comprehension models and comprehensive approaches to instruction” (NRC, 2012, p. 247). This project is developing and refining both 1) scenario-based, higher-level reading comprehension and 2) reading component assessments of adult literacy skills that can be administered over the internet and scored automatically. Fellows involved in this study would help Greenberg with data collection and test development, including field test of items, validity studies (construct, content, and concurrent), item response analyses, and large-scale norming (8000 examinees).

Collaboration and Partnership Grant Work. Greenberg, Tighe, and Hendrick have a Research-Partnership grant (R305H180061) with the Georgia Adult Office of Education. The purpose of this grant is to address the states' research need to understand the factors that influence adults' participation and success in Georgia's adult education programs and to build capacity of the Georgia Office of Adult Education staff to use data and participate in research aimed to improve adult education outcomes. Fellows will be exposed to mixed-methods exploratory research, such as hierarchical linear modeling, analyses of qualitative surveys, interviews, focus groups, and document analysis. Most importantly, by attending meetings with state officials, they will learn how to interact with policy makers and practitioners, how to collaborate on joint research explorations, and how to explain research results in lay terms.

Summary: The US suffers from low college graduation rates and low overall literacy skills in the general population (e.g., American College Testing, 2016; Rampey, et al., 2016). Doctoral programs do not sufficiently expose graduate students to intensive quantitative research methods in areas relevant to adults who have low reading and writing skills. There are no known postdoctoral programs that focus on adult learners with low skills. Our postdoctoral fellowship program will develop a new generation of researchers who will conduct and communicate high-quality scientific research in areas that are important to policymakers, practitioners, and other researchers.

Research Training Plan

We will recruit fellows for a 2-year fellowship from a range of academic backgrounds. Although, they need to have an interest in adult learners with low skills, they may or may not have experience in adult learner research or instruction. They will also range in their knowledge of reading, writing, adult learning theory, statistics and research methods. Our training program will both strengthen their existing skills while addressing skill gaps through mentoring, hands-on experience, course auditing, and other training opportunities. Fellows will conduct studies and publish articles in high-ranking research journals in fields such as reading, adult education, psychology, and applied linguistics. They will also know how to effectively translate their knowledge and research into language that policy-makers and practitioners can understand and will be familiar with the different conferences and journals that adult literacy policy-makers and practitioners attend and read. As a result of our training program, fellows will have the content and methodological knowledge to submit competitive applications for research funding (exploration, development/innovation and/or measurement methodologies) on adult learners with low skills in the areas of assessment, reading comprehension, distinct student skill profiles, proficient academic reading, and writing. Our fellows will be well-poised to take on research positions in research institutions such as ABT Associates, AIR, and also faculty positions in research universities.

Recruitment Plan, Eligibility Requirements, Selection Criteria and Timeline:

Recruitment: We will recruit two cohorts of two fellows. Cohort 1 will start in Year 2, and cohort 2 will start in Year 4. These fellows will include individuals who have obtained doctoral degrees from programs such as educational psychology, learning sciences, adult education, lifelong learning, workforce education, higher education, applied linguistics, curriculum and instruction, developmental psychology, cognitive psychology, and other closely related fields. We will advertise the fellowship through existing graduate programs that have training relevant

to adults with low skills. We will also advertise through listservs that reach researcher audiences (e.g., AERA, SSSR) and practitioner/policymaker-focused listservs (e.g., COABE, AAACE). This approach will allow us to find fellows who may come straight from doctoral programs or who may have completed their training recently but wish to pursue postdoctoral training. See Appendix F for a preliminary list of doctoral programs and listservs. As required by IES, we will not recruit/accept applications from individuals who have an existing relationship with any of the faculty members associated with this fellowship program.

In addition to ensuring we have academic diversity, we are dedicated to ensuring our pool of applicants is demographically diverse and that we are finding applicants from smaller, less-known programs. To achieve this, we will work with our College of Education's Dean's Office to help recruit such individuals. Georgia State University's College of Education has a long history of partnering with rural universities and historically black colleges and universities (HCBUs). A few examples are Fort Valley State University, Middle Georgia State University, and Albany State University. In addition to reaching out to specific institutions, we will publish a recruiting advertisement in *Diverse: Issues in Higher Education*, and we will post our recruitment messages on electronic distribution lists such as the National Black Association for Speech-Language and Hearing and the Black caucus group of APA. We will explicitly state on our recruitment materials that we are interested in applications from minorities, veterans, and people with disabilities. GSU is nationally known for its successful commitment to first-generation, African American, and low-income students. We are located in downtown Atlanta, in one of the largest African-American populations in the US, and within close walking distance to the Martin Luther King Center and other civil rights markers. We are ranked by *Diverse: Issues in Higher Education* as 12th in the US for awarding education doctoral degrees to African Americans. We are, therefore, confident that we will be successful in recruiting fellows who represent rural, first generation, African American, and/or low-income demographics.

Eligibility Requirements: Eligibility requirements include US citizenship or permanent resident status, completion of doctorate degree prior to commencement of fellowship program, graduation from an academic institution in the US (including its territories) that confers doctoral degrees in fields relevant to adult learner research in US educational contexts.

Selection Criteria: Prior to the recruitment period, the full research mentor team will create a rubric to evaluate applications. This rubric will help us balance our priorities, which include knowledge of the adult learner population/setting; an interest in assessment, reading, and/or writing; quantitative course background or a demonstrated ability to learn (e.g., if an applicant has no quantitative training, there is evidence of applying research methods in a topic area); history of publications and presentations; an articulated academic or research career goal in the field of adult learning; and a stated match with a research focus of one of the mentors. Applicants will submit academic transcripts, vita, three letters of recommendation, and a two-page (single spaced) personal statement addressing research background, future career goals, knowledge of adult learner population, and interest in topics as described in recruitment materials. All mentors will review and score applications. A subcommittee will conduct Skype interviews with the top six applicants, of which three will visit the campus for a full interview and research presentation to the ALRC. All of the mentors will reconvene, discuss the rubric

scores and impressions from the interview and presentation and determine who to extend offers to (see Appendix D for Letter of Agreement that will be sent to fellows).

Timeline: In the first three months of Year 1, we will develop/refine our recruitment plan. We will recruit cohort one in the second through fourth quarters, with training beginning in the first quarter of Year 2. During the first quarter of Year 3, we will review and refine our recruitment plan and recruit our second cohort, who will start in the first quarter of Year 4.

Gantt Chart of Recruitment and Training:

	Year One				Year Two				Year Three				Year Four				Year Five			
<i>Develop/refine plan</i>	■								■											
<i>Recruit cohort 1</i>		■	■	■																
<i>Train cohort 1</i>					■	■	■	■	■	■	■	■								
<i>Recruit cohort 2</i>													■	■	■	■				
<i>Train cohort 2</i>													■	■	■	■	■	■	■	■

Program Setting: Our fellowship program will be housed in the ALRC in the College of Education and Human Development at GSU. The ALRC has a diverse group of 18 affiliate faculty and 25 student members who represent disciplines of Educational Psychology, Psychology, Nursing and Health Professions, Learning Sciences, Economics, Applied Linguistics, Evaluation and Research, English, and Public Health. As a result of the multidisciplinary nature of the ALRC, fellows will receive interdisciplinary training as they are developing their competencies to design and conduct research on adult learners. Fellows will be exposed to other adult learner funded research not officially associated with this fellowship program such as studies on health communication, mindfulness, and stroke prevention. The ALRC also hosts a Research Consortium where faculty, students, and our fellows can present work and get input on their research. We also call ad-hoc meetings for different research needs, including reviewing data, discussing journal articles, and reviewing potential grants. More ALRC activities are described in the Core Training Activities listed below.

Mentoring and Training Activities: Although fellows will be allowed to work on more than one project, they will have one primary placement and research mentor. Prior to the arrival of fellows, all research mentors will meet to discuss each fellow’s background, interests, and training needs and make recommendations for mentor assignments. Upon the fellows’ arrival, Greenberg (PI) and Tighe (Co-PI) will review these assignments with each fellow and modify as necessary. In addition to the mentoring, fellows will attend lab meetings, participate in project data collection and/or data analyses, and design an adjunct research study of their own that aligns with the main project and can result in first-authored publications and presentations. During the first three months of their fellowship, fellows will decide on their training goals, determine the focus of their independent project, and complete their first self-assessment packet (see Appendix F), which they will review quarterly with their mentor. Each fellow will participate in core activities and will identify additional supplemental activities to address gaps in their previous training or to further refine a skill of interest.

Mentoring Activities: Each fellow will meet with their primary research mentor weekly. At first, the meetings will focus on issues such as goal setting, creating a timeline, and balancing

work/life issues. After these initial meetings, the mentor and fellow will revisit these issues on at least a quarterly basis. However, the focus of the weekly meetings will become more research focused, with fellows being expected to work on a grant proposal, a first-author article, a co-author article and two presentations. As needed, each fellow will also have access to three methodological and statistical experts (described in personnel section).

Core Training Activities: Over the course of their fellowship, in addition to actively engaging in their primary research activities, fellows will be required to complete all activities under each of the following categories:

Dissemination

- Work on first author and co-author manuscript (minimum: one researcher-, one practitioner-focused)
- Present at a researcher conference and a practitioner conference

Professional Development and Networking

- Work on grant submission(s) with faculty member
- Volunteer as a reviewer on conference and/or journal submissions
- Attend a SEER workshop to learn how to pre-register studies, how to generalize study findings, and how to make findings, methods, and data available to others

Adult Literacy Awareness and Research-Sharing Activities

- Attend a 2-hour adult literacy sensitivity training workshop developed by Greenberg
- Participate in monthly brownbag research reading group with mentors, other faculty and students. The group will review a list of suggested readings on adult learners with low reading and writing skills
- Attend workshops on areas associated with the field of adult learning to learn about the breadth of the adult learner field and to develop a scholarly community. ALRC hosts these workshops along with other departments at GSU (e.g., Learning Sciences, Psychology, Applied Linguistics). Examples of workshops include the following:
 - o Exposure to the PIAAC dataset
 - o Exposure to the field of health literacy
 - o Exposure to the field of financial literacy
- Attend regularly scheduled talks and present at one. Examples:
 - o ALRC Data Fridays (discuss methodological/analytical issues in ongoing projects)
 - o Research on the Challenges of Acquiring Language and Literacy (RCALL) Monthly Distinguished Speaker Series (see <https://researchlanglit.gsu.edu/lecture-series/>)
 - o Center for Research on Atypical Development and Learning (CRADL) “Works in Progress”
 - o Department of Learning Science Brown Bag Series (informal discussion of ongoing and completed projects)
 - o Developmental Psychology Brown Bag Series (bimonthly informal research presentations of ongoing and completed projects and professional development)

Supplemental Training Activities: In addition to the above activities, fellows will have a menu of supplemental activities to choose from in consultation with their mentor:

- Revise dissertation into a manuscript for journal submission

- Gain teaching experience (no more than one course per year) in the departments of Psychology, Learning Sciences, and/or Applied Linguistics and ESL
- Visit adult literacy classes (for fellows who have little or no exposure to adult education)
- Individualized methods/statistics consultations (fellows may meet with ALRC and other GSU methodologists and statisticians to receive consultations on their independent research projects)
- Audit courses and/or attend workshops or other training opportunities (internal and external to GSU) to obtain content or statistical training on topics such as adult learning, discourse processes, structural equation modeling, item response theory models, confirmatory factor analyses, and latent class analyses (for examples, see Appendix F)
- Audit courses, and/or attend workshops or other training opportunities (internal and external to GSU), to obtain training on research software: natural language processing tools, SALT for transcript coding, R, SPSS, SAS, STAT, Mplus, IDB Analyzer, SR Experiment Builder, Data Viewer (for eye-tracking tools), and E-Prime (for examples, see Appendix F)

Grant Activities:

Roles on Grants: Depending on training needs, project needs, and independent research needs, fellows will have a full range of roles on grants associated with this training program (see Appendix C). Examples include collecting and analyzing data, supervising a team of graduate and undergraduate students, disseminating findings, exploring new research questions and generating hypotheses.

Practice in other Grant-Relevant Skills: Fellows will be exposed to the complete grant process. Therefore, mentors will expose them to different funding opportunities (e.g., IES, NIH, NSF, and foundations). Fellows will learn how to search for funding mechanisms and what is involved in application writing. They will read mentors' successful and unsuccessful grant proposals (along with reviewer comments). They will help mentors work on grant submissions and resubmissions, and/or submit their own grant applications. To learn about accountability, they will assist with annual/final report writing.

Professional Development Activities:

Dissemination: The next generation of researchers must be comfortable communicating research to multiple stakeholder groups and may wish to work in academic or non-academic settings. We intend to train fellows accordingly. To help fellows learn how to communicate with both practitioners and researchers, fellows will submit presentations/publications to practitioner-oriented conferences/journals and researcher-oriented conferences/journals. Examples include COABE, ProLiteracy, and AAACE conferences and journals (practitioner focused) and AERA, APA, SSSR, ST&D conferences and journals (researcher focused).

Job Search: Mentors will help fellows identify academic and non-academic career options that will leverage their knowledge and skills. They will be encouraged to practice their job talks as part of the ALRC presentations.

Tracking Fellows' Progress and Program Success:

To track our progress and success, we will use both qualitative data (e.g., open-ended responses) and quantitative data (e.g., number of publications, presentations, grants). During the first quarter of the grant, we will set benchmarks for our fellows and the program.

Tracking Fellows' Progress: During their first week, fellows will complete a self-assessment survey and bring it to their first meeting with their mentor (see draft in Appendix F). The fellow and mentor will use the assessment to individualize the fellow's goals and timeline and create a training plan. They will review this plan quarterly to determine whether the fellow is making progress and update accordingly. Every six months, Greenberg or Tighe will also attend these meetings to evaluate whether fellows' objectives are attained in a timely fashion. If they are not being attained in a timely fashion, remedial actions will be taken (e.g., revision of training plan, more frequent meetings, additional/different mentor, possible termination). At the end of each year, fellows will also submit an updated CV. The primary mentor and any other faculty member that the fellow has worked with will contribute to an annual progress letter. The letter will detail research activities (e.g., publication and presentation record, awards, grant proposals, participation in expected lab activities), professional development (e.g., conference/workshop attendance, networking activities, reviewing manuscripts for journals), and if applicable to the fellow, teaching experiences. The fellow and mentor will meet to discuss the annual letter, a timeline for future goals, revisions to goals, and ways to help make sure the fellow is gaining the necessary experiences needed for his/her chosen career path. Beyond the annual, formal evaluation, fellows will have ongoing opportunities to meet with mentors to discuss goals, timelines, job interests, and progress on research projects.

Tracking Program Success: We will determine whether the training program is achieving its aims by reviewing our efforts. We will review the Recruitment efforts in the quarter following each recruitment wave. We will review Training activities annually and adjust accordingly and at the end of the grant. At the end of the grant, we will review our Outcomes. Below are examples of questions we will use during our review.

- Recruitment:
 - Did we recruit as planned from the various practitioner and researcher organizations?
 - Did we recruit as planned from HCBUs?
 - Did we receive applications from a diverse pool?
- Training:
 - Did we offer all of our Core Required Activities?
 - Did we offer all of our Supplementary Activities?
- Outcomes:
 - How many remediation plans had to be instituted?
 - Did we have any non-completers?
 - How many research products (i.e., publications, presentations, grant submissions) were completed?
 - What types of jobs did our fellows accept upon completion of program?
 - How does our track record compare to the track record of a comparable, large, southeastern top-tier research institution? For example, at Florida State University (FSU), across disciplines, approximately 25-33% of postdocs go on to tenure-track positions, 10-15% research faculty, 21-22% industry positions, and 30-43% a second postdoc position (Office of Postdoctoral Affairs, FSU, 2017 and 2018).

In addition, we will develop an exit interview for fellows and will include questions regarding quality of training received, depth of information received, interdisciplinary exposure received, mentorship/support received.

Financial Support to the Fellows and the Overall Training Program

Fellows Support: Fellows will receive a stipend of \$60,000, which is above average for GSU, along with a full fringe benefit package, travel costs to the annual IES PI meeting and a personal research budget of \$21,821. Each fellow will develop a spending plan for this research budget. Depending on the research and training interests of the fellow, he or she may use these funds for costs such as equipment (e.g., laptop, data or software licenses), travel to conferences or workshops, or payment for research participants. Fellows are guaranteed 1-year's funding with a second year being conditional upon making progress.

Program Support: We will use program funds to support recruitment and activities meant to support the cohorts as a whole. Costs will cover recruitment of fellows including advertising in *Diverse: Issues in Higher Education* (approximately \$2,000 for an advertisement), the PI's travel to the annual IES meeting, administrative support, honoraria for speakers, convening events for the fellows and tracking fellows' progress, and success.

Personnel

Primary Research Mentors: Primary Research Mentors will collaborate on recruitment and program/fellow evaluation, support program activities (e.g., workshops, brown bags), and serve as potential primary mentors to fellows. All primary research mentors will focus on ensuring that the fellows gain expertise in theory and methods, are well-rounded communicators and collaborators (with researchers, policy-makers and practitioners), and are trained to work with the struggling adult learn population, in a wide array of education settings.

Dr. Daphne Greenberg, Principal Investigator (PI), Distinguished University Professor, Director of Adult Literacy Research Center (ALRC), Research Mentor (0.6 mos, years 1-5 in kind). Dr. Greenberg is a Distinguished University Professor in the Educational Psychology Program in the College of Education and Human Development (CEHD) at GSU. She is the Director of the ALRC, as well as the PI for the Center for the Study of Adult Literacy (csal.gsu.edu), a \$10 million IES-funded Research and Development Center on adult literacy. She has been funded by federal agencies (NICH, NIFL, ED, DoD) and foundations (Komen Foundation) and has articles published in journals such as the *Scientific Studies of Reading*; *Journal of Research and Practice for Adult Literacy, Secondary, and Basic Education*; *Journal of Adolescent and Adult Literacy*; *Journal of Educational Psychology*; and *JREE*. She is a founding member of the Georgia Adult Literacy Advocacy group and the Literacy Alliance of Metro Atlanta. She has tutored adults and has helped communities organize and develop adult literacy programs. She has successfully mentored doctoral and postdoctoral students, including one who is now the Associate Director of the ALRC. As the PI, she will have full responsibility for the grant and oversight of the program. She will be the liaison between this grant and IES and ensure compliance with IES requirements. She will manage communication among mentors and ensure that adequate resources and facilities from ALRC are available. She will mentor fellows on these projects: R305C120001, R305A160129, and R305H180061.

Dr. Elizabeth L. Tighe, Co-PI, Assistant Professor, Assistant Director of ALRC, Research Mentor (0.6 mos, years 1-5 in kind). Dr. Elizabeth L. Tighe is an Assistant Professor of Developmental Psychology and the Assistant Director of the ALRC at GSU. Prior to GSU, she was a Postdoctoral Research Scholar at the Institute for the Science of Teaching and Learning at Arizona State University and an IES Predoctoral Fellow at Florida State University. She has expertise in adult literacy, component reading skills and reading comprehension assessment, and advanced statistical analyses (in particular latent variable modeling). She has extensive knowledge of statistical designs and analyses for use in education sciences and she has several publications on the reading skills and needs of struggling readers enrolled in adult literacy programs. She currently serves as a statistical consultant for two federally funded grants (NIH/NICHHD and IES Goal 1). She is also a current PI on an NIH/NICHHD R21 project on building morphological assessments for struggling adult readers as well as a PI on an IES Goal 1 project using an extant educational dataset (PIAAC) to examine the psychometric properties of literacy and reading component items for low-skilled adults. She recently completed an AERA Research Grant (Co-PI), with a primary role in statistical analyses and dissemination efforts, which investigates component skills and demographics related to incarcerated adults in the United States and an internal Language and Literacy project (PI) examining the eye movement characteristics during reading of struggling adult readers. She also has experience working with practitioners in adult education settings and she has taught high school equivalency courses for adult struggling readers. In this training program, she will assist Dr. Greenberg with overseeing and administrating all aspects of the fellowship program. She can be a primary mentor for any of the following projects: R305A180299 and R21HD095470.

Dr. Sarah Elizabeth Carlson, Assistant Professor, Affiliate Member of ALRC, Research Mentor (.36 mos, years 1-5 in kind). Dr. Sarah E. Carlson is an Assistant Professor in the Department of Learning Sciences (Educational Psychology program) at GSU. She is also a former IES postdoctoral fellow (University of Oregon) and IES predoctoral fellow (University of Minnesota). She was one of the original developers of MOCCA, a diagnostic reading assessment for students in Grades 3-5, and is currently Co-PI on an IES-funded grant to validate it for postsecondary readers. She holds a doctorate and master's degree in Educational Psychology from the University of Minnesota. She will mentor fellows on R305A180417.

Dr. Scott Crossley, Professor, Affiliate Member of ALRC, Research Mentor (.36 mos, years 1-5 in kind). Dr. Crossley is a Professor of Applied Linguistics and Learning Sciences at GSU. He researches natural language processing (NLP) and the application of computational tools and machine learning algorithms in language learning, writing, and text comprehensibility. His main interest area is the development and use of NLP tools in assessing writing quality and text difficulty. He has published ~200 peer-refereed papers and has received over \$1,000,000 in extramural funding to support his research from resources such as IES, NSF, and NIH. He will mentor fellows on R305A180261.

Dr. Kathryn S. McCarthy, Assistant Professor, Affiliate Member of ALRC, Research Mentor (.36 mos, years 1-5 in kind). Dr. Kathryn McCarthy is an Assistant Professor of Educational Psychology in the Department of Learning Sciences at Georgia State University. Prior to GSU, she was a Postdoctoral Scholar at the Institute for the Science of Teaching and Learning at Arizona State University. She blends qualitative, quantitative, and computational

methods to investigate how students learn from complex texts in varying disciplines. Dr. McCarthy also explores how in-person and technology-enhanced educational interventions can improve students' reading comprehension strategies and skills. She has more than 20 scholarly works (books, journal articles, chapters, proceedings) and has presented more than 50 posters and presentations at national and international conferences. She can be a primary mentor for any of the following projects: R305A180144 and R305A190063.

Dr. Joseph Magliano, Professor, Affiliate Member of ALRC, Research Mentor (.36 mos, years 1-5 in kind). Dr. Magliano is a professor of Educational Psychology in the Department of Learning Sciences at GSU. He studies factors related to college reading readiness and uses a variety of methodologies to study and identify struggling college readers. His research explores the role of reader, texts, and task context on comprehension. He uses verbal protocols to study how people process texts and has developed computational systems to analyze verbal protocols. He has published approximately 115 journal articles, book chapters, books, and blogs (for lay people). Moreover, he has received approximately \$9,500,000 in extramural funding from funding resources, such as IES and NSF. He has trained five non-IES postdoctoral fellows. He will mentor fellows on grants R305A180144, R305A190063, and R305A150193.

Statistical and Methodological Experts: In addition to a primary mentor, fellows will have access to ALRC's statistical and methodological experts, who will help fellows identify methods/analysis learning goals, find appropriate courses or materials and provide consults on studies they want to design or are working on. This assistance may be 1:1, workshop-based, or small-group, depending on the needs and interests of the fellows.

Dr. Hongli Li, Associate Professor, Affiliate Member of ALRC, Stat/Method Expert (.24 mos, years 2-5 in kind). Dr. Hongli Li is an Associate Professor of Research, Measurement, and Statistics in the Department of Educational Policy Studies at GSU with a Ph.D in Educational Psychology (Educational Measurement) from Pennsylvania State University. She focuses on applied measurement and quantitative methods in education with a focus on language testing, assessment of reading comprehension, and classroom assessment. She will assist fellows who are interested in item response theory, structural equation modeling, meta-analysis, instrument development and validation. She can also teach fellows how to use SPSS, Mplus for structural equation modeling, and IRTPRO for item response theory.

Dr. Lee Branum-Martin Associate Professor, Affiliate Member of ALRC, Stat/Method Expert (.24 mos, years 2-5 in kind). Dr Lee Branum-Martin, Ph.D., is an Associate Professor in the Psychology Department at GSU. Previously, he conducted educational research at the Texas Institute for Measurement, Evaluation, and Statistics. He focuses on the use of multilevel multivariate models for understanding educational and psychological phenomena in their social contexts and on psychometrics, namely understanding relations among items, tests, or other performance measures. He has published on the conceptual implications of multilevel models for social contexts and the connection between structural equations and multilevel models. His work addresses reliability in longitudinal reading measures, implications of models for comorbidity, and theoretically based reevaluations of prior research. He will provide fellows assistance with not only specific methods of IRT, multilevel models, and SEM but also how they

connect and combine to answer questions about reading theory, disability in adults, and potential intervention effects. He can also train fellows in R, SAS, and Mplus.

Dr. Robert Hendrick, Research Associate II, Affiliate Member of ALRC, Stat/Method Expert (.12 mos, years 2-5 in kind). Dr. Robert Hendrick is a Research Affiliate in the Center for Evaluation and Research Services. Formally, he served as Assistant Superintendent for Carrollton City Schools in Carrollton, GA. At GSU, Dr. Hendrick works as the quantitative evaluation expert for the CEHD, aiding faculty and students with grant proposal writing and choosing appropriate methods to analyze quantitative data. He will provide training in social networking analyses, item response theory, survey building techniques, hierarchical linear modeling techniques, complexity theory, and working with large data sets.

Resources

The training program will occur at Georgia State University (GSU), which is the Southeast's urban research university and is ranked among the nation's top 108 public and private universities in the Carnegie Foundation's elite category of Very High Research Activity. Research awards have surpassed the \$100M milestone, a 75% increase since FY11. Research expenditures also reached ~\$150M, a 77% increase since FY11. Federal sponsorship accounts for 70% of total research volume. GSU offers a well-equipped environment in which to support this project's activities. GSU's College of Education and Human Development (CEHD) maintains a research bureau that provides support for pre- and post-award activities. All personnel have dedicated space and access to networked computers and lab space for data entry and analyses, and CEHD staff is available to support the Project Director in grant management.

The CEHD's ALRC will house this fellowship program. ALRC is an interdisciplinary, professional development and community partnership research center with focus on understanding the challenges and opportunities for adults with low literacy skills. ALRC's vision is to enrich the lives of individuals and families by advancing knowledge and the application of adult literacy skills that meet the needs of a changing society. Its mission is to link theory and practice through inter-disciplinary research, professional development, and community partnerships to understand the challenges and opportunities for adults with low literacy skills.

The ALRC suite has 1,412 square feet with open workspace for graduate research assistants, and office space for fellows, staff, and faculty members. It has locked filing cabinets which is used to store study information, desktop computers with secure access that have statistical packages, access to online research databases, writing software, bibliographic software, telephones, printers, and chairs/conference tables and remote conference facilities to be used for research team meetings. Each fellow will have access to networked personal computers for data entry and analyses in dedicated space in the ALRC. In addition to the ALRC facilities and programming, the fellows will also have access to the authentic education settings and professional networks established by the ALRC staff and the training program's mentors. Specifically, the mentors have long standing relationships with adult literacy programs, undergraduate programs with high rates of struggling adult readers, and secondary schools (individuals 16 and older who are struggling with reading and writing), as well as the Georgia Office of Adult Education (the state's adult educational agency).