

**U.S. Department of Education**  
**Washington, D.C. 20202-5335**



**APPLICATION FOR GRANTS**  
**UNDER THE**

**Enhanced Assessment Grants Application Package**

**CFDA # 84.368A**

**PR/Award # S368A130004**

**Grants.gov Tracking#: GRANT11446824**

OMB No. , Expiration Date:

Closing Date: Jul 08, 2013

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This application was generated using the PDF functionality. The PDF functionality automatically numbers the pages in this application. Some pages/sections of this application may contain 2 sets of page numbers, one set created by the applicant and the other set created by e-Application's PDF functionality. Page numbers created by the e-Application PDF functionality will be preceded by the letter e (for example, e1, e2, e3, etc.).

**Application for Federal Assistance SF-424**

\* 1. Type of Submission:

- Preapplication  
 Application  
 Changed/Corrected Application

\* 2. Type of Application:

- New  
 Continuation  
 Revision

\* If Revision, select appropriate letter(s):

\* Other (Specify):

\* 3. Date Received:

07/08/2013

4. Applicant Identifier:

5a. Federal Entity Identifier:

5b. Federal Award Identifier:

**State Use Only:**

6. Date Received by State:

7. State Application Identifier:

**8. APPLICANT INFORMATION:**

\* a. Legal Name:

Texas Education Agency

\* b. Employer/Taxpayer Identification Number (EIN/TIN):

74-6003079

\* c. Organizational DUNS:

1792608560000

**d. Address:**

\* Street1:

1701 N. Congress Avenue

Street2:

\* City:

Austin

County/Parish:

\* State:

TX: Texas

Province:

\* Country:

USA: UNITED STATES

\* Zip / Postal Code:

78701-1494

**e. Organizational Unit:**

Department Name:

Division Name:

**f. Name and contact information of person to be contacted on matters involving this application:**

Prefix:

Ms.

\* First Name:

Lizzette

Middle Name:

Gonzalez

\* Last Name:

Reynolds

Suffix:

Title:

Chief Deputy Commissioner

Organizational Affiliation:

\* Telephone Number:

512-463-8629

Fax Number:

\* Email:

Lizzette.Reynolds@tea.state.tx.us

**Application for Federal Assistance SF-424**

**\* 9. Type of Applicant 1: Select Applicant Type:**

A: State Government

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

\* Other (specify):

**\* 10. Name of Federal Agency:**

U.S. Department of Education

**11. Catalog of Federal Domestic Assistance Number:**

84.368

CFDA Title:

Grants for Enhanced Assessment Instruments

**\* 12. Funding Opportunity Number:**

ED-GRANTS-052313-001

\* Title:

Office of Elementary and Secondary Education (OESE): Enhanced Assessment Instruments Grants Program--Enhanced Assessment Instruments: Kindergarten Entry Assessment Competition CFDA Number 84.368A

**13. Competition Identification Number:**

84-368A2013-1

Title:

**14. Areas Affected by Project (Cities, Counties, States, etc.):**

Add Attachment

Delete Attachment

View Attachment

**\* 15. Descriptive Title of Applicant's Project:**

Texas Kindergarten Entry Assessment (T-KEA) System

Attach supporting documents as specified in agency instructions.

Add Attachments

Delete Attachments

View Attachments

**Application for Federal Assistance SF-424**

**16. Congressional Districts Of:**

\* a. Applicant

b. Program/Project

Attach an additional list of Program/Project Congressional Districts if needed.

**17. Proposed Project:**

\* a. Start Date:

\* b. End Date:

**18. Estimated Funding (\$):**

* a. Federal	<input type="text" value="823,207.00"/>
* b. Applicant	<input type="text" value="0.00"/>
* c. State	<input type="text" value="0.00"/>
* d. Local	<input type="text" value="0.00"/>
* e. Other	<input type="text" value="0.00"/>
* f. Program Income	<input type="text" value="0.00"/>
* g. TOTAL	<input type="text" value="823,207.00"/>

**\* 19. Is Application Subject to Review By State Under Executive Order 12372 Process?**

a. This application was made available to the State under the Executive Order 12372 Process for review on

b. Program is subject to E.O. 12372 but has not been selected by the State for review.

c. Program is not covered by E.O. 12372.

**\* 20. Is the Applicant Delinquent On Any Federal Debt? (If "Yes," provide explanation in attachment.)**

Yes  No

If "Yes", provide explanation and attach

**21. \*By signing this application, I certify (1) to the statements contained in the list of certifications\*\* and (2) that the statements herein are true, complete and accurate to the best of my knowledge. I also provide the required assurances\*\* and agree to comply with any resulting terms if I accept an award. I am aware that any false, fictitious, or fraudulent statements or claims may subject me to criminal, civil, or administrative penalties. (U.S. Code, Title 218, Section 1001)**

\*\* I AGREE

\*\* The list of certifications and assurances, or an internet site where you may obtain this list, is contained in the announcement or agency specific instructions.

**Authorized Representative:**

Prefix:  \* First Name:

Middle Name:

\* Last Name:

Suffix:

\* Title:

\* Telephone Number:  Fax Number:

\* Email:

\* Signature of Authorized Representative:  \* Date Signed:

## ASSURANCES - NON-CONSTRUCTION PROGRAMS

Public reporting burden for this collection of information is estimated to average 15 minutes per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Management and Budget, Paperwork Reduction Project (0348-0040), Washington, DC 20503.

**PLEASE DO NOT RETURN YOUR COMPLETED FORM TO THE OFFICE OF MANAGEMENT AND BUDGET. SEND IT TO THE ADDRESS PROVIDED BY THE SPONSORING AGENCY.**

**NOTE:** Certain of these assurances may not be applicable to your project or program. If you have questions, please contact the awarding agency. Further, certain Federal awarding agencies may require applicants to certify to additional assurances. If such is the case, you will be notified.

As the duly authorized representative of the applicant, I certify that the applicant:

1. Has the legal authority to apply for Federal assistance and the institutional, managerial and financial capability (including funds sufficient to pay the non-Federal share of project cost) to ensure proper planning, management and completion of the project described in this application.
2. Will give the awarding agency, the Comptroller General of the United States and, if appropriate, the State, through any authorized representative, access to and the right to examine all records, books, papers, or documents related to the award; and will establish a proper accounting system in accordance with generally accepted accounting standards or agency directives.
3. Will establish safeguards to prohibit employees from using their positions for a purpose that constitutes or presents the appearance of personal or organizational conflict of interest, or personal gain.
4. Will initiate and complete the work within the applicable time frame after receipt of approval of the awarding agency.
5. Will comply with the Intergovernmental Personnel Act of 1970 (42 U.S.C. §§4728-4763) relating to prescribed standards for merit systems for programs funded under one of the 19 statutes or regulations specified in Appendix A of OPM's Standards for a Merit System of Personnel Administration (5 C.F.R. 900, Subpart F).
6. Will comply with all Federal statutes relating to nondiscrimination. These include but are not limited to: (a) Title VI of the Civil Rights Act of 1964 (P.L. 88-352) which prohibits discrimination on the basis of race, color or national origin; (b) Title IX of the Education Amendments of 1972, as amended (20 U.S.C. §§1681-1683, and 1685-1686), which prohibits discrimination on the basis of sex; (c) Section 504 of the Rehabilitation Act of 1973, as amended (29 U.S.C. §794), which prohibits discrimination on the basis of handicaps; (d) the Age Discrimination Act of 1975, as amended (42 U.S.C. §§6101-6107), which prohibits discrimination on the basis of age; (e) the Drug Abuse Office and Treatment Act of 1972 (P.L. 92-255), as amended, relating to nondiscrimination on the basis of drug abuse; (f) the Comprehensive Alcohol Abuse and Alcoholism Prevention, Treatment and Rehabilitation Act of 1970 (P.L. 91-616), as amended, relating to nondiscrimination on the basis of alcohol abuse or alcoholism; (g) §§523 and 527 of the Public Health Service Act of 1912 (42 U.S.C. §§290 dd-3 and 290 ee- 3), as amended, relating to confidentiality of alcohol and drug abuse patient records; (h) Title VIII of the Civil Rights Act of 1968 (42 U.S.C. §§3601 et seq.), as amended, relating to nondiscrimination in the sale, rental or financing of housing; (i) any other nondiscrimination provisions in the specific statute(s) under which application for Federal assistance is being made; and, (j) the requirements of any other nondiscrimination statute(s) which may apply to the application.
7. Will comply, or has already complied, with the requirements of Titles II and III of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (P.L. 91-646) which provide for fair and equitable treatment of persons displaced or whose property is acquired as a result of Federal or federally-assisted programs. These requirements apply to all interests in real property acquired for project purposes regardless of Federal participation in purchases.
8. Will comply, as applicable, with provisions of the Hatch Act (5 U.S.C. §§1501-1508 and 7324-7328) which limit the political activities of employees whose principal employment activities are funded in whole or in part with Federal funds.

9. Will comply, as applicable, with the provisions of the Davis-Bacon Act (40 U.S.C. §§276a to 276a-7), the Copeland Act (40 U.S.C. §276c and 18 U.S.C. §874), and the Contract Work Hours and Safety Standards Act (40 U.S.C. §§327-333), regarding labor standards for federally-assisted construction subagreements.
10. Will comply, if applicable, with flood insurance purchase requirements of Section 102(a) of the Flood Disaster Protection Act of 1973 (P.L. 93-234) which requires recipients in a special flood hazard area to participate in the program and to purchase flood insurance if the total cost of insurable construction and acquisition is \$10,000 or more.
11. Will comply with environmental standards which may be prescribed pursuant to the following: (a) institution of environmental quality control measures under the National Environmental Policy Act of 1969 (P.L. 91-190) and Executive Order (EO) 11514; (b) notification of violating facilities pursuant to EO 11738; (c) protection of wetlands pursuant to EO 11990; (d) evaluation of flood hazards in floodplains in accordance with EO 11988; (e) assurance of project consistency with the approved State management program developed under the Coastal Zone Management Act of 1972 (16 U.S.C. §§1451 et seq.); (f) conformity of Federal actions to State (Clean Air) Implementation Plans under Section 176(c) of the Clean Air Act of 1955, as amended (42 U.S.C. §§7401 et seq.); (g) protection of underground sources of drinking water under the Safe Drinking Water Act of 1974, as amended (P.L. 93-523); and, (h) protection of endangered species under the Endangered Species Act of 1973, as amended (P.L. 93-205).
12. Will comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. §§1271 et seq.) related to protecting components or potential components of the national wild and scenic rivers system.
13. Will assist the awarding agency in assuring compliance with Section 106 of the National Historic Preservation Act of 1966, as amended (16 U.S.C. §470), EO 11593 (identification and protection of historic properties), and the Archaeological and Historic Preservation Act of 1974 (16 U.S.C. §§469a-1 et seq.).
14. Will comply with P.L. 93-348 regarding the protection of human subjects involved in research, development, and related activities supported by this award of assistance.
15. Will comply with the Laboratory Animal Welfare Act of 1966 (P.L. 89-544, as amended, 7 U.S.C. §§2131 et seq.) pertaining to the care, handling, and treatment of warm blooded animals held for research, teaching, or other activities supported by this award of assistance.
16. Will comply with the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. §§4801 et seq.) which prohibits the use of lead-based paint in construction or rehabilitation of residence structures.
17. Will cause to be performed the required financial and compliance audits in accordance with the Single Audit Act Amendments of 1996 and OMB Circular No. A-133, "Audits of States, Local Governments, and Non-Profit Organizations."
18. Will comply with all applicable requirements of all other Federal laws, executive orders, regulations, and policies governing this program.
19. Will comply with the requirements of Section 106(g) of the Trafficking Victims Protection Act (TVPA) of 2000, as amended (22 U.S.C. 7104) which prohibits grant award recipients or a sub-recipient from (1) Engaging in severe forms of trafficking in persons during the period of time that the award is in effect (2) Procuring a commercial sex act during the period of time that the award is in effect or (3) Using forced labor in the performance of the award or subawards under the award.

<p>* SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL</p> <p>Shirley Beaulieu</p>	<p>* TITLE</p> <p>Chief Financial Officer</p>
<p>* APPLICANT ORGANIZATION</p> <p>Texas Education Agency</p>	<p>* DATE SUBMITTED</p> <p>07/08/2013</p>

# DISCLOSURE OF LOBBYING ACTIVITIES

Complete this form to disclose lobbying activities pursuant to 31 U.S.C.1352

Approved by OMB  
0348-0046

<b>1. * Type of Federal Action:</b> <input type="checkbox"/> a. contract <input checked="" type="checkbox"/> b. grant <input type="checkbox"/> c. cooperative agreement <input type="checkbox"/> d. loan <input type="checkbox"/> e. loan guarantee <input type="checkbox"/> f. loan insurance	<b>2. * Status of Federal Action:</b> <input type="checkbox"/> a. bid/offer/application <input checked="" type="checkbox"/> b. initial award <input type="checkbox"/> c. post-award	<b>3. * Report Type:</b> <input checked="" type="checkbox"/> a. initial filing <input type="checkbox"/> b. material change
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**4. Name and Address of Reporting Entity:**  
 Prime     SubAwardee

\* Name:

\* Street 1:     Street 2:

\* City:     State:     Zip:

Congressional District, if known:

<b>6. * Federal Department/Agency:</b> <input type="text" value="U.S. Department of Education"/>	<b>7. * Federal Program Name/Description:</b> <input type="text" value="Grants for Enhanced Assessment Instruments"/>
	CFDA Number, if applicable: <input type="text" value="84.368"/>

<b>8. Federal Action Number, if known:</b> <input type="text"/>	<b>9. Award Amount, if known:</b> \$ <input type="text"/>
--	--

**10. a. Name and Address of Lobbying Registrant:**

Prefix  \* First Name  Middle Name

\* Last Name  Suffix

\* Street 1  Street 2

\* City  State  Zip

**b. Individual Performing Services** (including address if different from No. 10a)

Prefix  \* First Name  Middle Name

\* Last Name  Suffix

\* Street 1  Street 2

\* City  State  Zip

**11.** Information requested through this form is authorized by title 31 U.S.C. section 1352. This disclosure of lobbying activities is a material representation of fact upon which reliance was placed by the tier above when the transaction was made or entered into. This disclosure is required pursuant to 31 U.S.C. 1352. This information will be reported to the Congress semi-annually and will be available for public inspection. Any person who fails to file the required disclosure shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

\* Signature:

\* Name: Prefix  \* First Name  Middle Name

\* Last Name  Suffix

Title:  Telephone No.:  Date:

## NOTICE TO ALL APPLICANTS

The purpose of this enclosure is to inform you about a new provision in the Department of Education's General Education Provisions Act (GEPA) that applies to applicants for new grant awards under Department programs. This provision is Section 427 of GEPA, enacted as part of the Improving America's Schools Act of 1994 (Public Law (P.L.) 103-382).

### To Whom Does This Provision Apply?

Section 427 of GEPA affects applicants for new grant awards under this program. **ALL APPLICANTS FOR NEW AWARDS MUST INCLUDE INFORMATION IN THEIR APPLICATIONS TO ADDRESS THIS NEW PROVISION IN ORDER TO RECEIVE FUNDING UNDER THIS PROGRAM.**

(If this program is a State-formula grant program, a State needs to provide this description only for projects or activities that it carries out with funds reserved for State-level uses. In addition, local school districts or other eligible applicants that apply to the State for funding need to provide this description in their applications to the State for funding. The State would be responsible for ensuring that the school district or other local entity has submitted a sufficient section 427 statement as described below.)

### What Does This Provision Require?

Section 427 requires each applicant for funds (other than an individual person) to include in its application a description of the steps the applicant proposes to take to ensure equitable access to, and participation in, its Federally-assisted program for students, teachers, and other program beneficiaries with special needs. This provision allows applicants discretion in developing the required description. The statute highlights six types of barriers that can impede equitable access or participation: gender, race, national origin, color, disability, or age. Based on local circumstances, you should determine whether these or other barriers may prevent your students, teachers, etc. from such access or participation in, the Federally-funded project or activity. The description in your application of steps to be taken to overcome these barriers need not be lengthy; you may provide a clear and succinct

description of how you plan to address those barriers that are applicable to your circumstances. In addition, the information may be provided in a single narrative, or, if appropriate, may be discussed in connection with related topics in the application.

Section 427 is not intended to duplicate the requirements of civil rights statutes, but rather to ensure that, in designing their projects, applicants for Federal funds address equity concerns that may affect the ability of certain potential beneficiaries to fully participate in the project and to achieve to high standards. Consistent with program requirements and its approved application, an applicant may use the Federal funds awarded to it to eliminate barriers it identifies.

### What are Examples of How an Applicant Might Satisfy the Requirement of This Provision?

The following examples may help illustrate how an applicant may comply with Section 427.

(1) An applicant that proposes to carry out an adult literacy project serving, among others, adults with limited English proficiency, might describe in its application how it intends to distribute a brochure about the proposed project to such potential participants in their native language.

(2) An applicant that proposes to develop instructional materials for classroom use might describe how it will make the materials available on audio tape or in braille for students who are blind.

(3) An applicant that proposes to carry out a model science program for secondary students and is concerned that girls may be less likely than boys to enroll in the course, might indicate how it intends to conduct "outreach" efforts to girls, to encourage their enrollment.

We recognize that many applicants may already be implementing effective steps to ensure equity of access and participation in their grant programs, and we appreciate your cooperation in responding to the requirements of this provision.

### Estimated Burden Statement for GEPA Requirements

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless such collection displays a valid OMB control number. Public reporting burden for this collection of information is estimated to average 1.5 hours per response, including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. The obligation to respond to this collection is required to obtain or retain benefit (Public Law 103-382). Send comments regarding the burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the U.S. Department of Education, 400 Maryland Ave., SW, Washington, DC 20210-4537 or email [ICDocketMgr@ed.gov](mailto:ICDocketMgr@ed.gov) and reference the OMB Control Number 1894-0005.

**Optional - You may attach 1 file to this page.**

GEPA.pdf

Delete Attachment

View Attachment

## **Section 427, General Education Provisions Act (GEPA)**

The Texas Education Agency (TEA), in collaboration with The University of Texas Health Science Center's Children's Learning Institute (CLI)—and backed by the Texas Association of School Boards, the Texas Association of School Administrators, and a network of renowned experts from the University of Miami, New York University, the University of Denver, the University of Virginia, the University of Texas at Austin, Michigan State University, and Kansas University—proposes to implement an ambitious and achievable Texas Kindergarten Entry Assessment System (TX-KEA) that enhances the quality and variety of assessment instruments and systems used by Texas' 1,227 school districts serving 5,075,840 total students, including up to 400,000 incoming kindergarten students across 4,342 elementary campuses, annually.

We have selected collaborators who have demonstrated their commitment and dedication to addressing the needs of diverse populations, particularly students from low income families, students with disabilities, and students who are English language learners.

The TEA and its partner organizations are committed to providing equitable access to, and the full participation of, all persons in our delivery of high quality technical assistance and professional development, without regard to gender, race, national origin, color, disability, or age. We are committed to a policy of nondiscrimination and equal employment opportunity. All decisions on the selection of staff and consultants are based on the needs of the proposed project and the expertise and performance of the staff and advisors. The TEA further ensures that decisions related to retention, training, transfer, promotion, and upgrading of all employees are made on the basis of job-related qualifications and job performance, without regard to race or ethnic group, creed, color, religion, age, sex, sexual orientation, disability, or national origin.

All project activities and products will be designed to reach out to, and be accessible to, all persons including services being accessible to all people (e.g., those with visual, hearing, cognitive, and learning impairments). Materials will be made available in a variety of formats, and in languages in addition to English, as practicable and feasible. Meeting spaces will be accessible and sign language interpreters will be available.

---

## CERTIFICATION REGARDING LOBBYING

### Certification for Contracts, Grants, Loans, and Cooperative Agreements

The undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

### Statement for Loan Guarantees and Loan Insurance

The undersigned states, to the best of his or her knowledge and belief, that:

If any funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this commitment providing for the United States to insure or guarantee a loan, the undersigned shall complete and submit Standard Form-LLL, "Disclosure of Lobbying Activities," in accordance with its instructions. Submission of this statement is a prerequisite for making or entering into this transaction imposed by section 1352, title 31, U.S. Code. Any person who fails to file the required statement shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

<b>* APPLICANT'S ORGANIZATION</b>	
<input type="text" value="Texas Education Agency"/>	
<b>* PRINTED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE</b>	
Prefix: <input type="text" value="Ms."/>	* First Name: <input type="text" value="Shirley"/> Middle Name: <input type="text"/>
* Last Name: <input type="text" value="Beaulieu"/>	Suffix: <input type="text"/>
* Title: <input type="text" value="Chief Financial Officer"/>	
* SIGNATURE: <input type="text" value="Shirley Beaulieu"/>	* DATE: <input type="text" value="07/08/2013"/>

## Abstract

The abstract narrative must not exceed one page and should use language that will be understood by a range of audiences. For all projects, include the project title (if applicable), goals, expected outcomes and contributions for research, policy, practice, etc. Include population to be served, as appropriate. For research applications, also include the following:

- Theoretical and conceptual background of the study (i.e., prior research that this investigation builds upon and that provides a compelling rationale for this study)
- Research issues, hypotheses and questions being addressed
- Study design including a brief description of the sample including sample size, methods, principals dependent, independent, and control variables, and the approach to data analysis.

[Note: For a non-electronic submission, include the name and address of your organization and the name, phone number and e-mail address of the contact person for this project.]

---

## You may now Close the Form

**You have attached 1 file to this page, no more files may be added. To add a different file, you must first delete the existing file.**

\* Attachment:

## The Texas Kindergarten Entry Assessment System: Proposed by the Texas Education Agency

The Texas Education Agency (TEA), in collaboration with The University of Texas Health Science Center's Children's Learning Institute (CLI) – and backed by the Texas Association of School Boards, the Texas Association of School Administrators, and a network of renowned experts from the University of Miami, New York University, the University of Denver, the University of Virginia, the University of Texas at Austin, Michigan State University, and Kansas University – proposes to implement an ambitious and achievable Texas Kindergarten Entry Assessment System (TX-KEA) that enhances the quality and variety of assessment instruments and systems used by Texas' 1,227 school districts serving 5,075,840 total students, including up to 400,000 incoming kindergarten students across 4,342 elementary campuses, annually.

The TEA, throughout this proposal, has set the bar high in terms of its six proposed goals for its assessment system. These goals revolve around providing innovative and flexible, technology-driven assessment solutions designed to measure student achievement at kindergarten entry across multiple domains. Addressing the U.S. Department of Education's Absolute Priorities 1, 2, 4, and 5, these goals include: (1) construct item pools with good content validity for assessing nine domains of school readiness in English or Spanish; (2) scale items within a heterogeneous sample of socio-linguistically diverse students; (3) select items for paper-pencil and computerized versions; (4) evaluate reliability, validity, sensitivity, and fairness of the TX-KEA; (5) develop a technology platform for the TX-KEA and integrate with the state's longitudinal data system; and (6) develop, launch, and coordinate a comprehensive information and training system for teachers and administrators.

This proposal is anchored in an understanding of the assessment needs of Texas and other states. Through a systematically designed risk and project management approach, TEA and its collaborators will develop assessment and data reporting solutions that optimize outcomes for schools, teachers, administrators, parents, community stakeholders, and ultimately, children.

TEA has assembled an experienced team with the full array of expertise and experience required to develop and implement the TX-KEA successfully. We have proposed an officer-in-charge, Dr. Susan Landry, who has worked across the nation to advance changes in assessment, teaching, and learning, which have led to unprecedented achievements for school leaders, teachers, families, and children. We also have proposed a project director, Dr. Jason Anthony, who is a renowned expert in language and literacy as well as the development and implementation of cutting-edge assessments. Additional experts with exceptional technical knowledge and skills, and academic faculty with strong experience and expertise in assessment and child development complement the team.

Building on a national reputation for high-quality early childhood education – as evidenced by the success of the *Texas School Ready! Project*, one of the nation’s only scaled, comprehensive school readiness interventions – combined with the successful development and launch of its innovation longitudinal data initiative, the Texas Student Data System (TSDS), TEA is poised to lead the nation and benefit other states by building a kindergarten entry assessment system that will promote comprehensive analyses of student school readiness and support the ability of teachers, administrators, and parents to be responsive to multiple domains of student strengths and needs.

## Project Narrative File(s)

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\* Mandatory Project Narrative File Filename:

PROJECTNARRATIVE.pdf

[Delete Mandatory Project Narrative File](#)

[View Mandatory Project Narrative File](#)

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To add more Project Narrative File attachments, please use the attachment buttons below.

[Add Optional Project Narrative File](#)

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## Theory of Action

The Texas Education Agency (TEA), in collaboration with The University of Texas Health Science Center at Houston's Children's Learning Institute (CLI), proposes to develop and bring to scale a comprehensive Kindergarten entry assessment system. Through a focus on **Absolute Priorities 1, 2, 4, and 5**, the TEA and CLI plan to leverage considerable resources, expertise, and experience, to utilize cutting-edge research from the fields of child development, assessment, and technology to provide public schools and other stakeholders across the state with a rigorous approach to measuring student school readiness and supporting teachers, administrators, and parents with tools to utilize these data effectively.

The current grant opportunity is an optimal match to the needs of this large state; Texas now leads the nation with the most explosive early childhood population growth with approximately 400,000 entering Kindergarten students annually. The realities of this sizable and diverse population—combined with a public school system that spans over 1,000 school districts, over 4,000 campuses offering Kindergarten education, and over 10,000 Kindergarten teachers—highlights the critical importance that school readiness plays in ensuring more children succeed as they progress towards college and the workforce.

Indeed, national and local attention to the status of children upon entry to formal schooling has increased dramatically in the past two decades (Council of Chief State School Officers, 2011; Snow, Burns, & Griffin, 1998). Attention to school readiness is of interest to educators and policymakers given expanded investments in pre-Kindergarten programs (Barnett & Yarosz, 2007) and persistent national achievement gaps (e.g., National Center for Education Statistics, 2012). Yet, pre-Kindergarten through grade 2 remain the largely “untested grades” and subjects beyond reading and math are too often untested despite their developmental significance (Bornfreund, 2013). If appropriately designed, administered and integrated into a systems-based approach, assessments conducted at the start of Kindergarten can be quite valuable for several purposes. The proposed project would develop and implement a criterion-referenced, Kindergarten entry assessment – the Texas Kindergarten Entry Assessment (TX-KEA) – to be used for

the purpose of determining whether students meet specified academic standards and development levels. This point-in-time snapshot of each student's knowledge and abilities will inform instruction and identify whether additional instruction or diagnostic testing is needed.

The Enhanced Assessment Grants (EAG) program is also timely because, in May of 2013, the Texas state Senate moved to intensify Kindergarten assessment efforts (S.B. No. 172) with a focus on assessments that address multiple domains of development. The proposed project provides an opportunity to ensure a valid and reliable state assessment is developed that achieves these goals and is coordinated with the Texas Statewide Data System (TSDS) to track children's progress over several years of schooling. Figure 1 illustrates the Theory of Action (TOA) to show how project resources and activities will produce output to achieve the desired outcomes and impacts on student achievement.

**Resources & Activities: TEA/CLI collaboration:** A successful collaboration of TEA with the CLI and TEA has been in place since 2003, when Texas legislature named CLI the Texas's State Center for Early Childhood Development (SCECD). This collaboration has addressed many educational issues of high importance to the Agency, including development and implementation of research-based assessments, curricula, and professional development. Of particular relevance are TEA/CLI ongoing collaborations to develop, research, and train teachers across the state to use the K-2 Texas Primary Reading Inventory/Tejas Lee (TPRI; Fletcher, Forman, Francis, Ciancio, Santi, Millner et al., 2010) and the pre-K CIRCLE Phonological Awareness Language and Literacy System (C-PALLS; Landry, Assel, Gunnewig, & Swank, 2004). Both sets of measures demonstrate reasonable psychometric qualities, are available in English and Spanish, and are designed for universal screening and progress monitoring. Unique features of these assessments are that teacher training resources go beyond test administration to include information on analyzing data, grouping for instruction, instructional planning resources, and communicating with parents. Our combined experience in large-scale professional development, technical assistance, and oversight of implementation will ensure teachers and administrators appropriately utilize assessment results. Because these existing assessments focus primarily on literacy, the proposed project represents an important opportunity to address a greater number of often neglected, yet important

developmental domains (e.g., social/emotional skills, science knowledge). We plan to develop new, multidimensional English and Spanish Kindergarten entry assessments that evidence superior psychometric characteristics through reliability, scaling and validation research. Also, a new Kindergarten assessment can capture important contextual aspects of children's early learning and development (e.g., linguistic and cultural background, special needs) from multiple informants (i.e., teachers and parents).

To develop the TX-KEA, TEA has assembled a team of nationally-recognized content experts in the areas of language, literacy, math, science, social/emotional skills, executive functioning, bilingualism, and special learning needs. It is also noteworthy that our collaborator, the CLI, authored the Texas Infant/Toddler Early Learning Guidelines (ITELG, 2013) and the Texas Pre-Kindergarten Guidelines (2008) which define expectations for knowledge and skills from birth through the start of Kindergarten. Thus, the assembled team will be well-positioned to develop a Kindergarten entry assessment that is aligned with the multidimensional state early learning standards. In addition, we have recruited nationally recognized consultants (i.e., content experts, psychometricians, and universal design experts) who, along with key stakeholders and several Kindergarten teachers, will provide input and feedback on the assessment framework and system. Using an iterative development process, we will ensure the assessment has good face validity and usability features within actual classroom contexts.

Integrated, interoperable data systems are the key to better utilization of assessment data, greater management efficiency, and online and technology-based assessments of student performance that empower educators to transform teaching and differentiate instruction. TEA's long-range plan for technology extends from 2006-2020 and provides much of the necessary infrastructure (e.g., broadband access, computing devices) for technology-based assessments and longitudinal data management through the TSDS. The current technology plan will leverage existing components of TSDS to upload, house, integrate, and report assessment results that will be enhanced in the proposed project. Online and distance learning technologies will also be developed to train teachers, administrators and other education professionals in all aspects of the finalized assessment system.



Figure 1. Flow chart describing the Theory of Action

In addition to 24/7 access to online training resources and data, technical assistance will be provided to support test administration, scoring accuracy, and data security.

**Output: How the assessment results will be used.** When development is complete, the TX-KEA will have the potential to impact approximately 400,000 Kindergarten students annually. The TX-KEA assessment and data system will be capable of use with 100% of Kindergarten students in Texas. TEA requires all public school students' to be tested upon entry to Kindergarten and provides a means for schools to track student progress over time with the TSDS longitudinal data system. Primary uses of assessment results will be to communicate to parents, teachers, administrators and stakeholders the ability levels of children or groups of children upon their entry into Kindergarten, to identify children at risk of academic failure, and to guide instructional grouping of children by classroom teachers and special educators. Other outputs are that over 10,000 Kindergarten teachers and roughly 5,000 district-level administrators will participate in online and/or face-to-face trainings to learn how to administer the test reliably, how to analyze data, how to utilize reporting features for instructional purposes, and how to monitor trends in baseline data over time. More specifically, teachers and parents will be provided child-level reports of students' strengths and needs for each domain as well as a total score across all subtests. Teacher reports and training will focus on classroom-level data to inform instructional planning and flexible student groupings. Principals and district administrators will be provided classroom- and school-level reports that include both aggregated data and data disaggregated by ELL status, free and reduced lunch status, special education status, and ethnicity. District- and state-level administrators will also have access to similar aggregated and disaggregated reports for the district or state, respectively.

**Outcomes: How the assessment will be incorporated into coherent educational systems.** A significant change expected from the proposed project would be a shift in educators' understanding and focus on school readiness as the sociolinguistically diverse population of Kindergarten students in Texas would be assessed with a multidimensional measure rather than ones limited in scope to emergent literacy. A concurrent change in the landscape of education is that districts and schools around the country and in Texas are increasingly using universal assessments within systematic, tiered intervention

systems that follow a Response to Intervention (RTI) approach (Fuchs & Fuchs, 2006; Vellutino, Scanlon, Zhang, & Schatschneider, 2008). TX-KEA would provide a sociolinguistically appropriate, reliable, and valid universal/Tier 1 measure to use to identify student's strengths and weaknesses and provide differentiated instruction to meet student needs at all levels. As stated, the TX-KEA will be a criterion-referenced test used for the purpose of proving a baseline snapshot of student's knowledge and development compared to specified levels of performance for each subtest (e.g., emerging, typically developing, proficient). Students who score below pre-defined acceptable levels of performance should be considered for additional instruction at the secondary level of intervention (Tier 2), which typically includes increased intensity of targeted instruction for identified areas of need (Fuchs & Fuchs, 2006). Educational materials and trainings will support schools and teachers in using the TX-KEA to achieve differentiated instruction, to systematically guide intervention in RTI models, and to engage families by communicating the results of child assessments. Reporting features and associated trainings will support administrators in using assessment data to inform decisions about investments in programmatic resources and professional development or areas to target and stimulate program improvement efforts.

**Impact: How the improved educational system will improve student achievement.** We expect the proposed project will greatly impact the extent to which teachers address a breadth of instructional objectives rather than narrowing their curriculum to primarily target reading and math skills. Without assessment data on multiple knowledge and skill domains, teachers are unlikely to have a whole child focus that lays the foundation for later college- and career-readiness skills required in the 21<sup>st</sup> century, such as social competencies needed to work collaboratively and effective approaches to lifelong learning. Our theory of change postulates that access to a research-based Kindergarten readiness assessment will lead to more effective classroom instruction and early intervention for at-risk students that will, in turn, result in improve long-term academic outcomes for students (e.g., Al Otaiba & Torgesen, 2007; Hintze & Marcotte, 2010; Snow, et al., 1998). If these impacts are realized, additional benefits will include cost savings because social and academic problems can be prevented earlier, thereby producing more productive, educated citizens because they started school ready to learn (Duncan, et al., 2007).

## **Research and Evaluation**

There is a clear need for reliable, valid, sensitive and fair assessment of Kindergarteners' school readiness. We believe the best way to meet demands for such an assessment tool is to collaborate with content experts to construct relevant test items and methodologists/statisticians to validate the test using their expertise in sampling and psychometrics, and to integrate scoring and reporting into the state's longitudinal assessment system. Having assembled such a team, we propose to develop English and Spanish versions of the TX-KEA. Based on developmental research and Item Response Theory (IRT) models of test construction, TX-KEA will assess Kindergarteners' knowledge and development of multiple domains that are essential for school readiness. The commitment of our SEA, the vast experience of the assembled research team with conducting large scale assessment research, and a longstanding history of positive collaborations with our collaborator CLI indicate the team is well situated to carry out the proposed project and achieve these six major project Goals.

**Goal 1: Construct item pools with good content validity for assessing nine domains of school readiness.** In Year 1 we will develop testing procedures, testing materials, and test items that provide coverage of the full continuum of Kindergarten children's knowledge and abilities in oral language, letter knowledge, phonological awareness, mathematics, science/engineering, approaches to learning, motor coordination, and executive functioning, and social-emotional competencies. Each of the constructs we propose to measure is well suited for IRT scaling. Task and item development will be guided by prior research in each content area. To create English and Spanish versions of the TX-KEA, tests and corresponding item pools will be constructed separately in each language for some sections (e.g., literacy) but others will simply be translations (e.g., motor coordination).

**Goal 2: Scale items in a heterogeneous sample.** New items will be administered to 2000 children in Years 2 and 3. Half will be monolingual English speakers and half monolingual or bilingual speakers of Spanish. To assure representative responses from respondents and avoid floor and ceiling effects, 1/3 of assessments will be conducted with 4-year-olds, 1/3 with 5-year-olds, and 1/3 with 6-year-olds.

**Goal 3: Select items for paper-pencil and computerized versions.** Item characteristics revealed through IRT will guide selection of items. Specifically, unbiased items that are most informative, most reliable, and provide good coverage of ability continua will be selected. English and Spanish versions will assess the full range of kindergartners' abilities in each domain of school readiness.

**Goal 4: Evaluate reliability, validity, sensitivity, and fairness of TX-KEA.** In Year 4, TX-KEA and standardized norm-referenced measures will be administered to 200 students in the fall to examine convergent and discriminant validity. Norm-referenced measures will also be administered in the spring to evaluate predictive validity. We hypothesize that (a) TX-KEA subtests will demonstrate good test-level reliabilities and item-level reliabilities across the ability continuum, (b) TX-KEA subtests will demonstrate large and significant correlations with norm-referenced measures of similar constructs, (c) TX-KEA subtests will be less associated with norm-referenced measures of different constructs than with those of like constructs, and (d) TX-KEA subtests will reliably predict children's achievement at the end of Kindergarten.

**Goal 5: Develop a technology platform for the TX-KEA and integrate with the state's longitudinal data system.** Throughout the course of the project's duration, we will develop and test a technology platform that provide a secure, accessible environment to host the TX-KEA, collect assessment data, and integrate the data into the state's longitudinal data system, TSDS, which will be enhanced to provide requisite reporting to teachers and schools throughout Texas.

**Goal 6: Develop, launch, and coordinate a comprehensive information and training system for teachers and administrators.** In Year 4, we will develop and launch training and professional development to support the capacity of teachers and administrators to effectively utilize the TX-KEA.

**Psychometric techniques for verifying each subtest.** Rigorous, research-based item development procedures, participant sampling procedures, item selection procedures, design of the validity studies, and the various statistical analyses performed will all play a role in ensuring that TX-KEA is sociolinguistically appropriate, reliable, and valid. These research and evaluation activities will take place in the first four phases of the project (see project timeline, p. 21). Phases 1 through 4 pertain to the

Research and Evaluation plan insomuch as they will determine the reliability, validity, sensitivity, and fairness of TX-KEA.

Item development, that is Phase 1, will be directed by content experts and CLI and will involve regularly scheduled input and systematic feedback from content experts at TEA, stakeholders, expert content consultants, teachers and the a committee with experts in universal design. Item development considerations common to all subtests will include minimizing factors that may bias items against particular gender, ethnic, geographic, SES, linguistic, and disability groups. Other common design features will include: simplifying administration and scoring decisions to the greatest extent possible, maximizing standardization of administration and scoring procedures through computer assisted testing and scoring, and writing of more items than ultimately included in TX-KEA to ensure retention of only well performing items, (see Kindergarten Entry Assessment Design for item development plans unique to each school readiness domain).

To provide a multidimensional, summative assessment of each child’s learning and development upon entry to Kindergarten across the essential domains of school readiness, we plan to develop 14 subtests that require direct assessment and three subtests that utilize observational ratings (see Table 1). Specifically, the TX-KEA will measure child performance and development across six essential domains emphasized in state and national standards, including: (1) oral language, (2) literacy, (3) cognition; (4) approaches to learning, (5) physical and motor development, and (6) social and emotional development.

Table 1. School Readiness Domains and Subtests of TX-KEA

<b>Domains</b>	<b>Subtests</b>	<b>Mode</b>
Oral language	<b>Vocabulary</b> <sup>1</sup>	Direct assessment
	<b>Listening comprehension</b> <sup>1</sup>	Direct assessment
Literacy	<b>Letter knowledge</b> <sup>1</sup>	Direct assessment
	<b>Phonological awareness</b> <sup>1</sup>	Direct assessment
	<b>Early writing</b> <sup>2</sup>	Direct assessment

Cognition	<b>Mathematics<sup>2</sup></b>	Direct assessment
	<b>Science and engineering<sup>2</sup></b>	Direct assessment
Approaches to learning	<b>Initiative<sup>2</sup></b>	Observational rating
Physical well-being	<b>Gross and fine motor<sup>2</sup></b>	Direct assessment
	<b>Physical health status<sup>2</sup></b>	Observational rating
Social & emotional	<b>Social competence<sup>2</sup></b>	Observational rating
	<b>Self-regulation<sup>2</sup></b>	Direct assessment
	<b>Emotion understanding<sup>2</sup></b>	Direct assessment

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<sup>1</sup> Separate English and Spanish subtests. <sup>2</sup> Spanish translations

Pilot testing, Phase 2, with a heterogeneous sample of approximately 75 Kindergarteners will examine feasibility and appropriateness of item types, instructions, corrective feedback on practice items, mode of assessment, and test materials. The scaling study, Phase 3, will involve administration of initial item pools to a heterogeneous sample of 2000 children. Children will be sampled from public schools across Texas, based on the demographic characteristics of students served at each school. Sampling will maximize representativeness of the ethnic, gender, SES, and ELL status of students across the state of Texas. Sampling will minimize clustering effects by restricting cluster sizes to no more than 6 children per classroom and no more than 24 children per school. We will perform matrix sampling of test items so that no child in the scaling study experiences the burden of being administered all items in the initial pools. Participants in the scaling study will range in age from 4 years 10 months to 6 years 2 months, which is +/- 2 SD around the mean age expected when Kindergarten entry assessments will be administered (mean age = 5 years 6 months, SD = 4 months). Concerning subtests with separate English and Spanish versions (i.e., vocabulary, listening comprehension, phonological awareness, letter knowledge), children will be tested in their dominant language as determined by the Woodcock-Muñoz Language Survey-Revised (WMLS-R). Children with disabilities will not be excluded from the scaling

study; however, we will deviate from standardized administration procedures with these children to appropriately accommodate their disability (see universal design accommodations pp. 61-63).

The initial item pools will be examined within each domain in order to reduce the pool to its most reliable subset. The variability of each item will be examined to eliminate items with too little variability due to floor or ceiling effects (i.e., percent correct or incorrect approaching 100%). The resulting set of items will be analyzed with exploratory factor analysis (EFA) to examine the unidimensionality of the items, and when possible, items with substantial factor loadings on more than one factor will be removed. The remaining items will be examined using two a-priori item response theory analyses that differ in their assumptions regarding how well each item indexes the underlying latent ability (theta). First, a 1PL model will constrain all item discriminations to equality, which assumes that all items index theta equally well. Second, a 2PL model will allow each item's discrimination to vary, which means that all of the items do not index theta equally well. This allows an individual comparison of items' reliability that can indicate when an item does not perform as expected and should be excluded from the test. Items that reliably index the construct of interest, provide good coverage across the ability continuum, closely align with state guidelines, and that do not demonstrate test bias will be selected for a beta version of TX-KEA.

Phase 4 consists of two validity studies, occurring one year apart (see timeline). Validity studies will involve administration of beta versions of subtests from TX-KEA in the fall of Kindergarten to approximately 100 Spanish speaking and 100 English speaking children from a variety of ethnicities and social classes. Norm-referenced, standardized tests of like constructs (e.g., WMLS-R, Clinical Evaluation of Language Fundamentals, Test of Early Math Ability, Test de Competencia Matemática Basica, BASC, Woodcock Muñoz Bateria III) will be administered in the fall and again in the spring of Kindergarten.

Each subtest will be separately subjected to psychometric analyses that demonstrate the subtests' reliability, validity and fairness. Face validity, one aspect of construct validity, will be ensured during the item development phase of the project through consultation among collaborators and feedback from expert consultants, key stakeholders, and educators, who will review procedures, instructions, materials, and test items of each domain of school readiness. External validity of TX-KEA will be ensured by pilot

testing of initial procedures, scaling of test items subsequently administered to a large and heterogeneous sample, and validating the assessments on diverse samples of Kindergarten students. Fairness of the TX-KEA will be guaranteed through exclusion of test items that demonstrate bias against demographic groups (gender, ethnicity, urbanicity, ELL status, SES) as would be evidenced by item response theory (IRT) analysis of differential item functioning using data gathered in the scaling phase of the project. Sensitivity and precision of ability estimates will be maximized through selection of the most discriminating items that equidistantly span the full performance continuum expected of children entering Kindergarten, as determined by IRT analysis of the scaling data. Excellent reliability will be achieved by selecting from the pool of scaled test items those items that highly correlate with the construct of interest and that collectively form a cohesive test that spans the ability continuum, as determined from item analyses based on classical test theory and/or IRT. Convergent and discriminant validity, other aspects of construct validity, will be evidenced through expected patterns of associations with standardized measures of similar and dissimilar constructs administered concurrent with TX-KEA in fall of Kindergarten. Validity studies will demonstrate predictive utility of TX-KEA by using fall TX-KEA scores to predict spring achievement. Predictive utility will be optimized through evaluation of previously selected items that will result in dropping items from a subtest that do not enhance prediction of scholastic outcomes. After analyses addressing reliability, validity and fairness of each subtest are completed, we will develop a scoring algorithm for the overall score that weights individual subtests according to their relative predictive utilities, using data from the validity studies. This method will ensure that all subtests contribute to the overall score and that the predictive utility of the overall score is maximized.

**Assurance of appropriate implementation to achieve TOA.** Web-based trainings catered to different audiences (teachers, principals, district administrators) and user manuals will explicate appropriate uses (e.g., universal benchmark testing, guiding instruction and professional development) and inappropriate uses (e.g., diagnostic assessment, accountability) of TX-KEA. Housing of assessment results within the secure TSDS will ensure that sensitive data are only used for their intended purposes and only shared with appropriate parties. Parents and teachers will be provided with automated child-level

reports. Principals will be provided classroom- and school-level reports. District administrators will be provided with school- and district-level reports of aggregated data and data disaggregated by ELL status, free and reduced lunch status, special education status, and ethnicity.

Because children in Texas are assigned unique identifiers upon school entry and because TSDS houses longitudinal assessment results, TEA, school districts, and schools will be able to evaluate the extent to which TX-KEA has its intended effects. Impacts on student achievement will be evidenced by cohort-related differences on statewide administered achievement tests. Similarly, school and district administrators may evaluate the impacts of TX-KEA and corresponding professional development investments on cohort-related, school-level and district-level improvements in achievement.

### **Professional Capacity and Outreach**

In this section, we describe how the proposed TX-KEA will support the professional capacity of public school teachers and administrators in implementing the proposed assessments and utilizing them to improve instructional practice, as well as inform the public and key stakeholders about the TX-KEA in an effort to leverage broad support.

#### **Supporting Teachers and Administrators: A Focus on Professional Capacity**

Implementation of the assessment system is conceptualized as part of an ongoing evaluation cycle that includes information gathering, data analysis, planning, and action steps. This cycle occurs at the administrative level when school leaders are trained to use aggregate results to identify broad-based professional development and resource needs, and at the student level when teachers are trained to use classroom data to plan for whole group, small group, and individual instruction. Appropriate assessment practice and data utilization requires: (1) in-depth training in administration and interpretation; (2) establishing routines for conducting assessments and setting goals; and (3) ongoing communication across administrators, teachers, and parents. In order to support the professional capacity of teachers and administrators, the current proposal envisions the development and deployment of web-based training modules that will be organized into the following sequential phases (adapted from Snow and Van Hemel, 2008): During the **preparation for administration** phase, administrators and teachers will learn about

the scope of the assessment system, how components align with early learning guidelines, and acceptable uses of the data; provides guidance for communicating the value and intent of the assessments with parents; and describes training procedures for assessors. The second phase of developing professional capacity (i.e., **administration**) involves teaching key stakeholders how to administer the assessments in a reliable and non-biased manner (e.g., neutrality) and includes procedures for (a) voice-recorded administration of selected subtests (e.g., letter sounds correctly pronounced by recorded voice), (b) determining whether to use English and/or Spanish administration; and (c) modifications for students requiring assistive technology. Teachers and administrators will also be provided in-depth training in **utilizing data** (e.g., interpreting sample reports and graphs to help teachers evaluate the needs of individuals and groups of children). In addition, reports including recommendations for grouping children and linked instructional activities will be provided to teachers and school administration.

Interactive training modules developed as part of this grant will be self-paced and include text, images, voice-over, and video demonstrations of correct administration of each subtest. Trainees will complete quizzes embedded within the instructional materials to demonstrate certification and fidelity. For teachers and administrators that require sustained opportunities to enhance district/school capacity to link assessment results with instruction, a guide for facilitating creating data-focused professional learning communities will also be developed. Finally, TEA in collaboration with CLI, will periodically invite users to participate in special topic webinars, be available to provide assistance to users if necessary, and post responses to frequently asked implementation questions.

### **Informing the Public and Key Stakeholders**

In addition to supporting the professional capacity of teachers and administrators, building the capacity of public stakeholders is essential. This collaboration proposes an interactive and responsive TX-KEA implementation methodology, as well as a robust rollout and ongoing communications effort. To properly engage administrators, teachers, and critical stakeholders in embracing and utilizing the TX-KEA, the collaboration will embark on a four-year communications and training plan. Immediately, upon receiving the award, the collaboration will begin building a TX-KEA awareness campaign.

The first step is the creation of an easy to access and understandable website, to include precise descriptions of the project's intent, timeline/progress, and associated activities. The feel and the message of the website will be one of accessibility, openness, and transparency. We understand that Kindergarten assessment is an issue many feel strongly about, requiring the project to create an authentic sense of trust and awareness across the state about the TX-KEA. Along with a website, the collaboration will assemble a robust listserv. Currently TEA and CLI can reach over 100,000 individuals through email; we will connect with other key organizations such as The Texas Elementary Principals and Supervisors Association, The Texas Association of School Boards, and the Texas Association of School Administrators to reach out and inform important critical stakeholders about the TX-KEA progress. Once the collaboration builds up its outreach and communications capacity, it will implement its ongoing communications plan which will include the following elements: routine updates on progress and developments in the TX-KEA on a TX-KEA website; monthly e-newsletters on the TX-KEA project including progress updates and opportunities for public feedback; and periodic informational webinars on the TX-KEA provided for stakeholder groups. At times, these webinars will function as a data collection method for the assessment development team in answering questions about how professionals currently use assessment and locating gaps in practice. At other times, the webinars will provide a space for open questions from all types of stakeholders.

The collaboration believes that for TX-KEA to be successful, an intentional approach must be taken to outreach. Our proposal includes funding for a dedicated web developer and communications specialist. We will enact a thorough and effective plan to support and engage stakeholders that begins with the TX-KEA development process itself. Our researchers and experts will initiate the assessment tool development process with a series of focus groups and surveys to better understand how teachers, parents, and administrators utilize assessments and assessment data, what are the barriers to proper usage and reliability, and how to best create a tool that represents the best of what we know from science but also meets the needs of the professionals and institutions implementing the TX-KEA. Designing the TX-KEA with these perspectives in mind will bring us closer to creating a tool that is usable, understandable,

and effective. Once developed in draft form, additional focus groups will be created to vet the assessment for functionality, accessibility, and usability. As we develop the TX-KEA, we will be continuously working in an iterative design process with the stakeholders that will ultimately administer the system.

As outlined above, upon completing the TX-KEA and transitioning to implementation, the collaboration, will initiate a well-coordinated training system for teachers and administrators. Our goal will be to offer end-users diverse methods for training and support. These methods include: online training modules for administrators and teachers (including measures evaluating knowledge through online quizzes); collaborating with Texas' statewide Educational Service Centers to offer live trainer-of-trainer sessions as an opportunities to interact directly with the TX-KEA development staff for specialized training; creation of an implementation toolkit for administrators (e.g., . methods to ensure the TX-KEA is being conducted properly and that its promise for individualized instruction and data-driven decisions is met); development of a support desk and toll-free call line to answer questions as communities integrate the TX-KEA into current practice; development of an online forum for users moderated by the collaboration on the TX-KEA website; and direct support for districts and schools (e.g., requests for on-site technical support from our group of experts).

### **Technology approach**

The selection of the technology for this project is informed by recent trends in information and communication technologies to improve the quality and consistency of test administration while maximizing accessibility and cost-effectiveness.

### **Technology Use in TX-KEA Assessment System**

TX-KEA will be developed to utilize hardware and software that are compatible with existing technology components and devices ranging from desktop PC's/MACs or portable devices. The scaling and validation studies will utilize mobile tablet computers, but we plan to ensure TX-KEA compatibility across a full range of devices. With respect to hardware we will leverage the numerous benefits provided by mobile tablet computers such as Apple iPads and those running the Android operating system from Google. Tablet computers offer significant capabilities that can be exploited for our project. Some of

these include: high portability, convenient form factor, powerful processors, appealing high-resolution displays, modern gesture-based user interface and others. Tablets are readily and easily accepted by even young children of the age group we are targeting. The new generation of ultra-portable laptops and netbooks are lightweight full function computers is also rapidly gaining market share.

The software requirements for our project will be met by technology for tablet computers called GuideVue ® that is owned by the University of Texas and developed by co-PI Dr. Sriram Iyengar. The system was originally invented by him at NASA Johnson Space Center as an advanced research project enabling astronauts (not all of whom are trained physicians) to provide medical support for themselves and each other during deep space exploration missions, including lunar and Martian habitats, when assistance from earth-based medical experts is impractical due to communication delays.

We selected this technology platform because GuideVue ® is a complete technology for developing interactive, structured, media-rich, communications-enabled informational, procedural, and instructional content that function like applications (‘apps’) when deployed on tablets devices. For brevity we refer to these ‘apps’ as guidevues. The technology consists of four components, (1) GuideVue Author, that enables Subject Matter Experts to develop guidevues without programming using a highly visual point-and-click, drag-and-drop interface; (2) GuideVue Players used to execute and display the guidevues on multiple mobile platforms (IOS, Android) as well as Windows laptops and netbooks; (3) GuideVue data manager that stores user data generated by the Players; and (4) the GuideVue web site that serves as a repository for guidevues, enabling downloads.

Some important features of the system, particularly relevant to our project are as follows: data are stored inside the device (there is no need for continuous data connectivity) and can be uploaded to a server by wired or wireless connections when connectivity become available; security of the data is insured by encrypting all data files stored on the device; and the system easily supports multiple languages, including Spanish and English. In addition, images, videos, and/or audio can be easily added to a guideVue app using the Author software, by dragging and dropping. This would allow for item instructions that can be directly recorded into the guideVue by pressing a button in the Author software

(i.e., allow for an increases in the reliability of the assessment administration and the interest of the students).

The TX-KEA guideVue app will be shared with other SEA and LEA upon request and signature of a Memorandum of Understanding agreeing to appropriate use. Then, other States can use a secure password protected, no-cost download of the app. The guideVue system will be used to develop user friendly media-rich forms that readily transfer to mobile devices. Since the authoring software does not require programming expertise, assessment forms can be quickly developed, tested on mobile tablets/laptops and refined to final versions. With respect to assessment, the system can gather data in several ways including button presses, capture of photos/videos, radio buttons, checkboxes etc. An audio track (Spanish or English) can be added to help guide the data input, which will be used to standardize the presentation of selected stimuli in order to increase reliability of the resulting scores.

As described above, data from assessment forms are stored in the mobile device. We will develop **reporting programs** with simple user interfaces to summarize scores for an individual child, class, school, or district. When an internet connection is established, the data collected can be uploaded into the guideVue data manager, which is a SQL-compatible database system. As such, all needed reports can be generated, at various hierarchies and levels, by a report writer programmer. We expect that the guideVue data manager databases will be located at the school level and district level to facilitate development of consolidated reports at the school district level. These data can periodically be pushed into the TEA databases to take advantage of the existing TSDS system. In addition, reports can be programmed into the app on the mobile advice, to allow for offline reporting on the mobile device. All reports will be developed in such a manner that immediate individual-level, small group-level, and classroom-level reporting can be made available to teachers and special educators.

### **Reducing Barriers to Technology Access and Implementation**

Throughout the design and conceptualization of the TX-KEA, the developers have worked to conceptualize a system that can be used across the state of Texas in a manner that is cost effective and

sustainable. Our work in integrated settings (e.g., childcare, Head Start, and public school districts) has allowed for an understanding of the varying degrees of technology that is available to teachers. Therefore, from the outset TX-KEA is being designed to ensure that the greatest number of schools and centers will have access to technology. The primary impetus for this surrounds the GuideVue® system which can be run on multiple types of platforms (e.g., IOS, Android, as well as Windows laptops and netbooks). This will keep the costs of the hardware required to run TX-KEA minimal. In addition, due to the fact that the TX-KEA will be made available for no costs to SEA and LEA, the cost of purchasing the required hardware is less than the per license fee for classrooms to run an online version of the C-PALLS+ (i.e., our pre-K progress monitoring system in Texas School Ready! Classrooms). In addition, the NCES estimated that internet access is available for 93% of the computers located in the classrooms everyday. Due to the increasing percentage of classrooms that have direct internet access and computers, the ability of the GuideVue ® system to hold data in a secure fashion until such point that a wired or wireless internet connection is available, our plans to develop paper-and-pencil versions of the TX-KEA, we see few barriers to access. Thus, TX-KEA will be suitable for use in remote and rural areas where connectivity of any kind is poor or intermittent.

### **Project Management Approach**

This section explains the work plan to achieve the six major project Goals for the TX-KEA and associated activities. In addition, we explain the proposed approach to project management and risk mitigation that aims to ensure the TX-KEA can be developed and implemented without significant delays and hindrances throughout the four year grant period. This section concludes with descriptions of key project personnel and consultants who will be working collaboratively on the TX-KEA.

### **Timeline and High-Level Work Plan**

Table 1 presents a high-level summary timeline of meetings, deliverables, and other milestones called for over the four-year period of the grant to achieve the six major Goals.

Table 1: Timeline of Meetings, Deliverables, and Milestones, Years One to Four

	Year 1				Year 2				Year 3				Year 4			
	Quarter				Quarter				Quarter				Quarter			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
Develop large assessment item pool																
Pilot and revise initial versions of all subtests																
Scaling study (N = 2000)																
Validation study (N = 200)																
Develop business requirements																
Develop assessment & user interface																
Conduct focus groups on assessment and reports																
Develop reports system & user interface																
Pilot comprehensive assessment/reports system																
Revise and finalize assessment & reports																
Develop integration with TSDS																
Finalize all products																
Engage stakeholders and elicit feedback																
Conduct focus groups with relevant educators																
Build district buy-in and implementation guides																
Develop, revise and launch educator trainings																

**Identifying and Minimizing Risks within the Project**

In order to be successful, significant talent, expertise, and leadership will be leveraged through proposed staff and resources from both the TEA and CLI collaborators. This will be combined with a strong project management structure and process. A consistent and industry-standard project management approach is essential to completing the work necessary to successfully deliver project outcomes on time,

in scope, and in budget. A high-level view of the TX-KEA project management approach includes: maintaining a proactive approach to identifying grant priorities and overcoming risks and obstacles to completing the project successfully and on time; ensuring a collaborative and transparent process between stakeholders (e.g., TEA, CLI, ED); creating an effective communication process among stakeholders; and enabling a flexible process that allows for multiple iterations required in a project of this magnitude. Based on Project Management Institute (PMI) Management Body of Knowledge (PMBok) principles, the leading industry standard for project management, TX-KEA leadership has developed an approach that will ensure appropriate completion of all deliverables. More specifically, TEA, in collaboration with CLI, will manage the activities of the TX-KEA as follows:

TEA/CLI have been intentional in **defining initial goals** based on perceived and real needs across the state while at the same time aligning these needs with actual best-practice assessment strategies and solutions. A second component of the PmBoK method is development of a **kick-off and plan**. During the kick-off meeting major stakeholders will discuss six preliminary project Goals, approaches, and operations, including predefined TX-KEA activities. Additional meetings between TEA/CLI and ED will be conducted based on the Department's identified prerogatives. The kick-off phase will also include development of a communication among key contacts (e.g., devising a schedule of standard reports and/or meetings). By **diagnosing needs and risks** throughout the project, TEA and CLI will be able to effectively implement the grant's goals and activities, and readjust its proposed approaches accordingly. Through close contact with our consultants and experts we will be able to **redefine and execute** phases of the grant's activities and develop work plans that conform to our TOA. In essence, planning will allow us to anticipate and prepare for the daily challenges that accompany each task, and help us redefine activities and deliverables as needed. One of the central components of the PMBoK system is that it allows for ongoing **evaluation**. This will allow TEA/CLI to continuously evaluate performance in light of stated goals. CLI will produce periodic status reports that include: (1) general TX-KEA updates; (2) TX-KEA schedule and accomplishments; (3) ongoing activities and activities to begin; (4) milestones with deliverable status and anticipated due dates; (5) risk and project issues with proposed resolutions; and (6)

activity and service change requests (including progress and status reports for ED). From the outset of the application, TEA/CLI has been focusing on plans to **transitioning** the TX-KEA to a standalone and cost effective KEA that can be used by LEAs and SEAs. Therefore, plans to develop a sustainable assessment that is easily incorporated in an already existing state system are being considered at the outset and throughout each stage of development.

### **Adequacy of Proposed Budget to Achieve Goals**

The collaboration is committed to carrying out the activities and services outlined in this proposal in a timely and effective manner. One determinant of a program's success is adequacy of the budget to support the proposed activities. A careful review of the budget justification will demonstrate the collaborations' thoughtful planning of project activities and corresponding costs.

### **Estimated Continuation Costs and Sustainability**

TEA has a record of supporting implementation of assessments developed through grant funding. The Texas Primary Reading Inventory, Texas Middle School Fluency Assessment, and Middle School Students in Texas Algebra Readiness are examples of TEA providing assessments to school districts, at no cost, beyond expiration of the original grant. For such projects, the state budgets approximately \$350,000-\$500,000 per project per year to sustain both print-based and online-based assessment systems.

TEA has employed a variety of strategies to sustain the availability and viability of tools such as these including: (1) placement of such tools in an online environment for easy and free download by schools; (2) use of state General Revenue and other grant sources for maintenance and revision of the tools; and (3) use of Project Share, TEA's online professional development site, used by over 1 million Texas teachers and educators, for hosting online teacher training in how to use such tools.

TEA has developed strong alliances with educational foundations such as Educate Texas and the Meadows Foundation, which have provided financial support for TEA's initiatives. TEA anticipates that these strategies, which have ensured the continuation of the described programs since their inception in 1999, and the agency's experience in deploying them will prove valuable in sustaining TX-KEA.

## **Quality and Commitment of Institutions and Key Personnel**

TEA, in collaboration with CLI, propose a staff of researchers, content experts and technical assistance specialists with exceptional knowledge and experience in order to develop and implement a high-quality Kindergarten entry assessment system. The proposed leadership has strong reputations among educators and state and federal policy makers and agencies for their experience in managing complex projects designed to effect significant change in state and local educational systems. This section provides background information on our collaborating institution and abbreviated biographical information on select key personnel, consultants, and national experts.

### ***Children's Learning Institute (CLI) at University of Texas Health Science Center at Houston***

CLI is a multidisciplinary institute with services that range from clinical assessment, diagnosis and treatment of learning disorders to interventions that enhance children's homes and schools by optimizing parent, teacher, and caregiver effectiveness. The Institute, directed by Dr. Susan Landry, includes 15 faculty and numerous experts in the fields of child development, education, neurodevelopment, medicine, research methods, and statistics. For over a decade, CLI has provided technical assistance to SEAs and LEAs across the nation, charter schools (e.g., KIPP), federal Head Start, and community-based child care centers. Notable examples include National Head Start STEP project; Texas Early Education Model; technical assistance to Harlem Children's Zone; technical assistance provider to all low-performing school districts in Texas; Higher Education Collaborative in which CLI assists universities and colleges in adoption of evidence-based, rigorous, early childhood coursework content; served as a Reading First technical assistance center that provided professional development and mentoring to hundreds of administrators and teachers across one of the nation's largest school districts; and technical assistance provider for the Texas Literacy Initiative, which is funded by the U.S. Department of Education's (E.D.) Striving Readers initiative.

CLI has also played and continues to play a leading role in bringing together experts to improve child well-being and school readiness through its work developing standards and guidelines, assessments, and improving teacher utilization of data to improve classroom instruction and child outcomes. Notable

examples include Texas Primary Reading Inventory; Tejas Lee; C-PALLS+; School Readiness Curriculum Based Measurement system; Beginning Education: Early Childcare at Home online, portable professional development courses; and eCIRCLE online professional development modules.

### **Roles, Responsibilities and Expertise of Key Personnel**

**Susan Landry** earned a Ph.D. in Developmental Psychology from University of Houston. She currently holds titles of Michael Matthews Knight Professor, Albert & Margaret Alkek Chair in Early Childhood, and Director of Children's Learning Institute at University of Texas Health Science Center. Dr. Landry brings expertise in areas of language and literacy, social skills, parenting, early childhood education, and professional development. Her extensive portfolio of grants, contracts, and publications has broadly focused on influences of biological, familial, and educational influences on child development. Her research and service projects have been funded by NICHD, U.S. Department of Education, TEA, and private foundations. In one particular project, Dr. Landry detailed the biological and environmental influences on children's development and learning. She has also directed a number of projects concerning responsive caregiving of parents and child care providers. Other projects developed a comprehensive professional training model for teachers in Pre-K and childcare settings to promote quality instructional approaches for enhancing school readiness. These efforts included development of mentoring techniques, classroom curricula, and progress monitoring assessment tools. Out of Dr. Landry's research emerged the Texas Early Education Model, which is used in thousands of preKindergarten classrooms across Texas. As Principal Investigator, she will be responsible for directing all aspects of the project. She will directly lead development of the Approaches to Learning and Social & Emotional Development domains of TX-KEA. Dr. Landry, in cooperation with the University of Texas Health Science Center, has authority to enter into legal agreements that bind the organization and authorize allocation of human and material resources to accomplish the TX-KEA goals.

**Jason Anthony** earned a Ph.D. in Clinical Psychology and an Ed.S. in School Psychology from Florida State University. He completed a multidisciplinary fellowship in developmental disabilities at

Florida State University and a clinical residency in the Department of Psychiatry at University of Washington. Following a postdoctoral fellowship at the Texas Institute for Measurement Evaluation and Statistics at University of Houston, Dr. Anthony joined the faculty at the University of Texas Health Science Center, where he is now a tenured Associate Professor. Dr. Anthony brings expertise in oral language, emergent literacy, developmental disabilities, developmental psychopathology, and assessment. He has authored 40 peer-reviewed publications in these areas; many focus on assessment of young children and special populations. He has served as consultant to federal and private agencies concerning assessment of young children (e.g., Head Start National Reporting System, Assessing Instructional Practices in Early Literacy and Numeracy, Migrant and Seasonal Head Start Survey Design, DHHS, Abt. Ass., Psychological Assessment Resources). Particularly noteworthy is that Dr. Anthony has been the principal investigator on a number of large scale research and evaluation projects funded by U.S. Department of Education, TEA, Head Start agencies, and private foundations. His research focuses on improving educational outcomes of at-risk preschool and elementary school-age children from low SES, ethnic and language minority backgrounds. One of Dr. Anthony's ongoing IES sponsored projects is to develop the School Readiness Curriculum Based Measurement System (SRCBM). This project involves item development, piloting, IRT scaling and validating of 15 tests of language and emergent literacy for English and Spanish speaking children aged 3- to 6-years.

As Project Director, Dr. Jason Anthony, will be responsible for the day-to-day operations and will oversee the development work, ensure timely deliverables, and prepare reports. Dr. Anthony will meet regularly with leaders of teams responsible for development of particular subtests, recruitment, data management, technology development and integration, and technical assistance. As a logical extension of Dr. Anthony's work directing development and state-wide scaling of SRCBM, he will also lead development of the Vocabulary, Listening Comprehension, Letter Knowledge, and Phonological Awareness tests in both English and Spanish.

**Michael Assel** earned a Ph.D. in Counseling Psychology at the University of Houston and completed his internship with Houston Independent School District. Following completion of a

postdoctoral fellowship at the University of Texas Health Science Center, Dr. Assel joined the faculty there, where is now an Associate Professor. Dr. Assel brings a great deal of expertise in assessment of young children. Dr. Assel is coauthor of the Circle-Phonological Awareness Literacy and Language Screener+ (C-PALLS) and School Readiness Curriculum Based Measurement System (SRCBM). He is one of the co-investigators on a TEA funded project to develop a pre-Kindergarten Science Screener. In addition to assessment projects, Dr. Assel has been co-investigator on several curriculum studies (e.g., PCER and a large NIH funded study evaluating the effects of an integrated curriculum). On these projects, Dr. Assel was responsible for constructing test batteries for sociolinguistically diverse populations, and training, hiring, and certifying assessors. Dr. Assel's roles will include item development, training test administration procedures, and certifying assessors. He will lead development of the Mathematics and Motor Skills subtests. This work is a logical extension of this work developing the mathematics subtests of C-PALLS+ and of his clinical work as practicing, licensed psychologist at the Dan L. Duncan Neurodevelopmental Clinic, where and routinely assesses children with various developmental disabilities. Dr. Assel will also lead the committee on universal design principles. Finally, Dr. Assel will help develop teacher training procedures and materials.

**John Gasko** earned a Ph.D. in Educational Policy and Leadership from the University of Texas at Austin. Dr. Gasko is the Associate Director of CLI, and works with the executive and legislative branches of government, along with state education and other agencies to build and sustain collaborations and community initiatives for enhancing outcomes for at-risk children. He has significant experience with the implementation and scale-up of high-quality early childhood education initiatives and is the Founding Chair of the Texas State Advisory Council on Early Childhood Education and Care. As Chair of the Texas Early Learning Council, Dr. Gasko organizes CLI staff and partners from state agencies, school districts, Head Start, and community agencies to execute one of the nation's most ambitious state advisory council grants. Dr. Gasko also led the efforts to help Texas become one of the nation's largest Early Development Instrument (EDI) networks, pioneered development of Texas' early learning guidelines for infants and toddlers, and implemented the nation's first random assignment evaluation of a

program to enhance early learning and school outcomes for children in family child care environments. Dr. Gasko will support the project director and assist with statewide recruitment and implementation for the TX-KEA, risk and project management, building and sustaining stakeholder relationships.

**Heather Taylor** earned her Ph.D. in Counseling Psychology from the University of Houston. Following her internship in Clinical Neuropsychology at the University of Texas Medical Branch in Galveston, she was employed as an Assistant Professor in the Department of Physical Medicine and Rehabilitation at Baylor College of Medicine. Dr. Taylor holds a joint appointment at UT-Health and Memorial Hermann TIRR. As the Director of two TIRR programs (i.e., Center for Neurorecovery and Spinal Cord Injury Research), Dr. Taylor has a great deal of experience in assessment and development of accommodations for children with Neurodevelopmental disabilities. As part of the current project, Dr. Taylor will assist with development of universal assessment and design of the TX-KEA subtests and serve on the UDAC (i.e., Universal Design and Accommodation Committee).

**Jeffrey Williams, Ph.D.**, is a quantitative methodologist. His areas of expertise include study design, sampling, and statistical analysis, including factor analysis, item response theory, and structural equation modeling. Dr. William's research focuses on program evaluation, measure development, and longitudinal research. Recent measurement work includes psychometric analyses of (a) an observational rating scale of teachers' classroom instruction, (b) a Spanish/English bilingual measure of young children's early language and literacy (SRCBM), and (c) a Spanish/English bilingual measure of children's science, engineering, technology, and math knowledge (C-PALLS+). Dr. Williams will serve as lead methodologist and statistician. He will oversee the sampling procedures to ensure maximal representativeness of demographics and children's abilities. He will supervise junior statisticians in data management, cleaning and basic statistical analysis. Dr. Williams will perform IRT analyses, and those which identify performance classifications and optimal weighting of subtests scores into the overall composite score.

**Tricia Zucker** received a Ph.D. from University of Virginia in curriculum, instruction, and special education with expertise in reading and language development. Dr. Zucker completed postdoctoral

training at the Children’s Learning Institute, where she is now an Assistant Professor. Dr. Zucker has experience directing state- and federally-funded projects concerning assessment validation, professional development of early childhood educators and primary school teachers. She is currently directing a study funded by TEA to develop and validate a new science and engineering subtest for C-PALLS. She recently completed a state-funded evaluation project that focused on language and literacy development of Spanish/English bilingual pre-Kindergarten students. Dr. Zucker has extensive experience training teachers and research staff to reliably administer standardized assessments and in training teachers to analyze assessment results for instructional planning. Dr. Zucker’s roles will include item development, training test administration, and development of report templates for parents, teachers, and administrators. She will lead development of the Writing and Science & Engineering subtests. Dr. Zucker will also elicit quantitative and qualitative feedback from Kindergarten teachers and other key stakeholders concerning ease of administration and scoring, duration of testing, and clarity of training and reports. Drs. Anthony, Zucker and Assel will train research staff to administer assessments. Dr. Zucker will help develop online and distance learning trainings for educators and administrators.

### **Consultants and National Experts**

To complement and supplement TEA’s and CLI’s organizational strengths and expertise, we reached agreements with a variety of consultants and experts to support this work (see letters of support).

**Clancy Blair, Ph.D.**, is a Professor in the Department of Applied Psychology at New York University. He is an expert in the development of self-regulation. His research includes the study of executive functions and how these skills are important for school readiness. His work has examined the integration of aspects of self-regulation with cognitive skills including math and literacy in Kindergarten. Dr. Blair will work closely with Dr. Landry to develop the social-emotional components of TX-KEA.

**Douglas Clements, Ph.D.**, has expertise in the area of mathematics. His research focuses on the development of curricula and professional development. He has participated in several national committees, including President Bush’s National Math Advisory Panel and the NSF-funded Conference on Standards for Preschool and Kindergarten Mathematics Education. He is co-author of Building Blocks

mathematics curriculum, TRIAD, an integrated mathematics curriculum and professional development system, and Investigations in Number, Data, and Space, a K-5 mathematics curriculum.

**Judy Carta, Ph.D.**, is a Senior Scientist at the Institute for Life-Span Studies at Juniper Gardens, University of Kansas, and a Professor of Early Childhood Special Education. She has expertise in accommodating assessments for children with special learning needs. She is a co-investigator on an IES funded project on Response to Intervention in Early Childhood that examines how assessment in pre-k and K can inform grouping of children and targeted instruction. She will be a member of the universal design committee that helps ensure TX-KEA is appropriate for children with special learning needs.

**Daryl Greenfield, Ph.D.**, has considerable expertise in young children's science knowledge and assessment. As author of Preschool Science Assessment (PSA) and co-creator of Early Childhood Hands on Science (ECHOS) curriculum, he will provide valuable input on subtests that measure science, technology, engineering and math. Dr. Greenfield also has expertise in developing psychometrically sound, computerized assessments for young children.

**Marcia Invernizzi, Ph.D.**, has expertise in areas of literacy assessment and integration of curriculum and instruction. She is the co-creator of the assessment of the Virginia Early Intervention Reading Initiative, Phonological Awareness Literacy Screening (PALS), which is used by 99% of schools in Virginia for universal literacy screening. Her work with the PALS literacy screening will allow her to provide expertise in large-scale professional development related to teacher-administered assessments and technical assistance to ensure these data are appropriately utilized by teachers and administrators.

**Elsa Hagan and Elizabeth Pena.** As Spanish-English bilingual speech-language pathologists, Drs. Hagan and Pena bring expertise in bilingual speech and language development. They also bring expertise in bilingual assessment, given that Dr. Hagan served as a consultant during creation of the Spanish version of the CTOPP and that Dr. Pena is one of the authors of the BESA. Drs. Hagan and Pena will serve on expert panels that review Spanish test items for linguistic appropriateness and lack of bias against dialectal groups. They will also provide consultation concerning construction of English and Spanish versions of the Listening Comprehension tests.

**Karen Ford, Ph.D.** Dr. Ford’s research focuses on bilingual literacy assessment, curriculum and instruction as integrated components within systematic intervention approaches. As co-creator of the Spanish version of PALS, she offers expertise creating comparable English and Spanish versions of assessments and in large-scale professional development and technical assistance.

**Ryan Bowles, Ph.D.**, is a quantitative psychologist with expertise in measurement and assessment. He is co-investigator on numerous IES sponsored measurement grants, including those that focus on measurement of self-regulation, phonological awareness, letter knowledge, and narrative skills.

### **Kindergarten Entry Assessment Design**

Our assessment approach will combine several direct assessments and observational measures to assess multiple developmental domains that comprise school readiness. This will be a criterion-referenced measure used primarily for the purpose of determining whether students meet specified performance levels (i.e., benchmark scores). The design of the TX-KEA will adhere to the following recommended design principles for appropriate assessment (e.g., CCSSO, 2011; Hamilton, Halverson, Jackson, Mandinach, Supovitz & Wayman, 2009; National Research Council, 2008): use of multiple measures to assess a broad range of developmental domains and competencies; alignment with TX early learning guidelines, TEKS and, where applicable, common core standards; evaluate achievement both directly and with systematic observations by classroom teachers; address students from diverse cultural and linguistic backgrounds and students with special needs; utilization of technology-based, teacher-administered assessments and scoring systems to improve standardization and data integrity; develop training supports and reporting features for teachers and programs; use data on children’s strengths and needs to inform instruction; integration of assessment data into longitudinal data systems; and avoidance of inappropriate uses of data, such as high-stakes decisions, restricting Kindergarten entry, labeling children as “ready” or “not ready,” or tracking children into groups. By adhering to these core principals of appropriate assessment design and implementation, we will ensure the TX-KEA produces a reliable and useful data and information for educators across our state.

### ***Measuring Children’s Learning and Development against Early Learning Standards***

To develop the TX-KEA, we will ensure alignment with the early learning guidelines in Texas that describe what children from birth to Kindergarten entry should know and be able to do. Texas’s early learning guidelines comprise two sources: (a) the Revised Texas Pre-Kindergarten Guidelines that were authored by CLI experts and approved by the Commissioner of Education in 2008; and (b) the Infant, Toddler and Three-Year-Old Early Learning Guidelines (ITELG) that were also authored by CLI experts and approved by the Governor-appointed Texas Early Learning Council in 2013 and endorsed by the Texas Chapter of the American Academy of Pediatrics. These guidelines cover all essential domains of school readiness as defined in this notice. They also include appropriate information for English learners and children with disabilities or developmental delays to ensure sociolinguistic appropriateness for students from diverse backgrounds. The Pre-K Guidelines and ITELG are aligned with the Texas K-3 standards – the Texas Essential Knowledge and Skills (TEKS) – in the areas of language arts, math, and science, social studies, physical education and fine arts. Each item will be linked to the Texas Pre-K Guidelines and the K TEKS, as well as other relevant Kindergarten national learning standards. Linking items to Kindergarten standards demonstrates vertical alignment to improve face validity.

### **Detailed Descriptions of Planned TX-KEA Subtests**

The next sections detail the planned TX-KEA subtests by explaining the importance of each subtest to children’s achievement, how the subtest measures important early learning standards, the rationale for the type of items, estimated number of items, the administration mode, and scoring methods. When each item is developed, it will be linked in a database to the specific early learning guideline from the Texas Pre-Kindergarten Guidelines. Where applicable, we will also link each item to relevant Kindergarten Texas Essential Knowledge and Skills (TEKS), Kindergarten common core standards (CCS), or Kindergarten Next Generation Science Standards (NGSS) to demonstrate the importance of these foundational knowledge and skills to long-term academic expectations. During the research and evaluation process a consideration in determining which piloted items will be retained in the final measure will be coverage of a rich breadth of the Texas early learning guidelines and vertical alignment with the TEKS. Next we describe of each subtest on TX-KEA, noting how item content will be aligned

with relevant learning and development standards, the number of each type of item, administration mode, methods and estimated times of scoring. Materials and procedures for scoring paper-pencil version of TX-KEA are described only for the first subtest (vocabulary) as similar materials, procedures, and their rationales will be used for all subtests.

**Oral Language.** Children’s ability to understand and produce spoken language is a multifaceted and constructive process central to child development and critical for school success (Foorman, Anthony, Seals, & Mouzaki, 2002). The National Research Council (Snow et al., 1998) maintained that most reading problems could be prevented by, among other things, increasing children’s oral language skills, and the National Reading Panel (2000) concluded that “vocabulary is critically important in oral reading instruction.” Longitudinal research supports these conclusions given positive correlations of vocabulary and complex oral language with later reading abilities (Bishop & Adams, 1990; National Early Literacy Panel, 2007; Pikulski & Tobin, 1989; Wagner, Torgesen, & Rashotte, 1994). The relation between oral language and reading depends on children’s age. In the earliest stages, reading involves decoding letters into corresponding sounds and linking those sounds to words and linguistic structures that exist in children’s mental dictionaries and mental grammars. Vocabulary also indirectly supports early literacy (Sénéchal & LeFevre, 2002; Storch & Whitehurst, 2002). Monolingual English speaking children with larger vocabularies tend to have more advanced phonological awareness (Anthony et al., 2002; Anthony et al., 2007; Burgess & Lonigan, 1998; Chaney, 1992; Lonigan, Anthony, et al., 2009; Lonigan, Burgess, & Anthony, 2000; Storch & Whitehurst, 2002; Wagner et al., 1993, 1997), which in turn directly supports literacy acquisition. Likewise, monolingual and bilingual Spanish speaking children with larger Spanish vocabularies also develop Spanish phonological awareness and English phonological awareness more quickly (Anthony et al., 2006; Anthony et al., 2009). For older children, the relation between oral language abilities and reading is bi-directional (Cunningham & Stanovich, 1991, 1998; Gillon & Dodd, 1994; Mason, 1992; Sénéchal & LeFevre, 2002; Snow et al., 1991; Tunmer & Hoover, 1992) ).

**Expressive vocabulary.** Expressive Vocabulary will be one of two tests of oral languages on TX-KEA. A picture naming task was selected because it has high face validity, is quick and easy to

administer, is engaging for children, and is reliably scored when acceptable answers are listed on digital scoring interfaces or response booklets. Additionally, item content provides good sensitivity across the ability continuum of preschool- and Kindergarten-aged children because over 800 English and Spanish words were extracted from published PreK and Kindergarten curricula and are currently being scaled in a heterogeneous sample of 3000 children across Texas. These items were written as part of an IES grant to develop the School Readiness Curriculum Based Measurement System (SRCBM). Items selected for TX-KEA will be those that are highly discriminating, are unbiased, provide coverage across the vocabulary performances of entering Kindergarten children, and are aligned with the Revised Texas Pre-K Guidelines (2008). The Guidelines specify that by the end of Pre-K children should be able to use a variety of labels for people (e.g., professions, familial relations), places (e.g., school, house, farm), routines (e.g., eating, sleeping), actions (e.g., digging, jumping), objects (e.g., fork, shovel), school materials (e.g., pencil, scissors), and categories (e.g., insects, furniture, clothing, tools). All of these types of vocabulary items were included in the pool of items being scaled for SRCBM, and all of these item types will be represented in TX-KEA.

Children are shown illustrations of an object, action, or concept via digital media (e.g., tablet, iPad, laptop) or optional flip book. Children are then asked to provide the word that is illustrated using short and simple directions (e.g., “What is this?”, “What is he doing?”, or “What are these?”). Stimuli are colored drawings because they are inexpensive and can be manipulated more easily than photographs to control background, foreground, aperture, perspective, and amount of detail.

Separate English and Spanish versions of TX-KEA vocabulary will employ the same task (i.e., picture naming) but use different prompts of course (e.g., “What is this?” vs. “Qué es esto?”). Although English and Spanish versions may include some of the same pictures, final versions will not include all of the same pictures because differential item functioning is expected (see Research and Evaluation plan). Spanish and English versions of TX-KEA Expressive Vocabulary will include between 20 and 30 items, will employ discontinuation rules of approximately 4 consecutive errors, and will take approximately 3 minutes to administer.

As for scoring, examiners indicate whether or not a child’s response is included in the list of acceptable words printed on the screen or response booklet. Digital scoring interfaces will provided the most intuitive and expedited scoring as examiners will only need to touch or click “Correct” or “Incorrect,” and the technology will essentially immediately and with perfect accuracy tally raw scores, convert them to performance levels, and send these data to the cloud as soon as an internet connection is established. Paper response booklets will be made optionally available to LEAs and schools that wish to save costs. Response booklets will have adjacent columns of ones and zeros for circling the score that corresponds to whether or not the response was on the list. Circling of 1s and 0s located in separate fixed locations leads to more reliable scoring than writing 1 or 0. Examiners using paper response booklets will need to tally the number of correct responses (approximately 10-15 seconds), circle the corresponding performance level listed in a conversion table on the form (approximately 5 seconds), and then pass the completed record form onto someone for subsequent data entry (approximately 30 seconds).

**Listening comprehension.** The collaboration judged it important to include a listening comprehension test because (a) longitudinal research indicates that literacy is more strongly predicted by complex language than by vocabulary (National Early Literacy Panel, 2007), (b) the Expressive Vocabulary tests cannot capture all of the Revised Texas Pre-K Guidelines, and (c) we believe it important to offer a receptive task for children who struggle with expressive language, e.g., speech sound disorder, stuttering, expressive language disorder, anxiety disorders, and shyness. The Listening Comprehension subtests of TX-KEA will be developed anew.

Two picture pointing tasks (see descriptions in next paragraph) were selected because they have high face validity, are relatively quick and easy to administer, are engaging for children, and are reliably scored, especially if users opt to use one of the technology-based versions rather than the alternative flipbook version. Two item types are needed to assess the breadth of oral language skills described in the Revised Texas Pre-K Guidelines, and collectively these two item types allow item content to be readily manipulated in such a way that they will provide good coverage of the language abilities of entering Kindergarten children. Item content will closely align with Texas guidelines that specify children at the

end of Pre-K should be able to follow one-, two-, and three-step directions and that they should understand grammatical rules including regular and irregular plurals, regular past tense, personal and possessive pronouns, subject-verb agreement, direct and indirect objects, and multiple phrase sentences.

Two item types will assess listening comprehension. Understanding of many morphosyntactic structures can be evidenced via a multiple choice, picture pointing task. For these items, children will be asked to point to the one of three pictures that correctly illustrates a given grammatical rule (e.g., number, tense, modification, proposition, etc.). Foils illustrate the same content but a misunderstanding of the rule being assessed. Understanding of multiple step directions and concepts, such as sequence, temporal order, relative location, equality, and exclusion, all of which are critical for learning from classroom instruction, will be assessed by having children point to multiple objects within a single picture illustration. The two types of items will be approximately equally distributed in the final versions.

Separate English and Spanish versions will be developed to reflect the languages' different grammars. Approximately 50 items will be developed and scaled in each language (100 items total), with the expectation that we will retain approximately half of the scaled items in the final versions. Thus, separate English and Spanish versions of TX-KEA listening comprehension will each include approximately 25 items, will employ discontinuation rules of approximately 4 consecutive errors, and will take approximately 5 minutes to administer.

As for scoring, item-level and test-level scoring will be fully automated for users of digital applications. That is, where a child touches the screen (or for children who have motor difficulties or users without touch screens, where an examiner clicks on the screen) will automatically be scored as correct or incorrect by the technology. Upon completion of the subtest, the technology will efficiently tally raw scores, assign performance levels, and send data to the cloud.

**Letter knowledge.** Knowledge of the names and sounds of letters at the time of school entry is a strong predictor of reading achievement (Adams, 1990; Stevenson & Newman, 1986). In alphabetic writing systems like English and Spanish, decoding text involves translating units of print (graphemes) to units of sound (phonemes). Children who cannot distinguish and recognize letters will have difficulty

learning the sounds those letters represent (Bond & Dykstra, 1967; Mason, 1980). Letter knowledge also supports development of phonological awareness (Bowey, 1994; Stahl & Murray, 1994), and this appears the case for both English letter knowledge and Spanish letter knowledge (Anthony et al., 2009).

Research suggests trends in the order children learn the names and sounds of letters (Philips, Piasta, Anthony, & Lonigan, 2012; Treiman & Kessler, 2006). Names of letters that are visually distinct (e.g., s) are learned before names of letters that are visually similar (e.g., p and b). Similarly, names of letters that are phonologically distinct (i.e., share few phonemes with names of other letters) are learned before names of letters that are phonologically similar to other letters. Also, children in the US generally learn the names of upper-case letters before names of lower-case letters. Thus, it is no surprise that children learn the names of lower-case letters that are shaped like their upper-case counterpart (e.g., C and c) more readily than they learn the names of lower-case letters that are not shaped like their upper-case counterparts (e.g., D and d). Also, children generally first learn the name of the first letter in their first and last names (Philips et al., 2012) and names of friends and family (Treiman & Broderick, 1998). Children also tend to learn some letter sounds before others. Children first learn the sounds of letters whose sounds are at the beginning of their names (e.g., b, g, k, o, p, t, z; McBride-Chang, 1999; Treiman et al., 1988), then sounds of letters whose sounds are at the end of their names (e.g., l, r, m, n), and finally sounds of letters which do not include their sound in their name (e.g., y, w). Prior knowledge of letter names also predicts letter-sound knowledge (Share, 1999; Treiman, Weatherston, & Berch, 1994).

The School Readiness Curriculum Based Measurement System (SRCBM) assesses children's knowledge of letter names and sounds in both expressive and receptive modes. All uppercase and all lowercase letters are currently being scaled as part of each of the four letter knowledge tasks in a heterogeneous sample of 3000 children across Texas. The multiple-choice, pointing task was selected for inclusion in TX-KEA because it is quick and easy to administer, is reliably scored on digital scoring interfaces or response booklets, is more fun and engaging, and is less likely than an expressive task to yield floor effects. Item content that spans both cases of letter names and both cases of letter sounds provides excellent coverage across the ability continuum of entering Kindergarten children, and using a

single task will provide seamless assessment of letter knowledge that spans knowledge of letter names and knowledge of letter sounds. Items selected for TX-KEA will be those that are highly discriminating, are unbiased, provide good coverage, and are aligned with the Revised Texas Pre-K Guidelines (2008) and Texas Essential Knowledge and Skills (TEKS). The Guidelines specify that by the end of Pre-K children should be able to name 20 letters and recognize the sounds of 20 letters.

TX-KEA Letter Knowledge will include two item types; one that assesses letter names and one that assesses letter sounds. Letter name items will ask children to point to a specific letter in an array of letters (e.g., “Point to A” when shown K T A, or “Point to B” when shown p b d ). Letter sound items will ask children to “Point to the letter that makes \_\_\_\_\_,” where the blank indicates a sound or combination of sounds associated with a particular letter in a given language (English or Spanish).

Initial item pools for SRCBM included all sounds associated with each of the English and Spanish letters and the double r, erre. The English item pool is much larger than the Spanish pool because over half of the English letters make more than one sound. Separate English and Spanish versions of TX-KEA Letter Knowledge will be developed to reflect the languages’ different names and sounds associated with letters. Given our collaborators’ research on creation of IRT-based short form assessments of letter knowledge (Piasta, Phillips, Williams, Bowles, & Anthony, 2013), we expect to retain approximately 8 letter name items and 8 letter sound items in the English version and 8 letter name items and 8 letter sound items in the Spanish version. Each version will take approximately 3 minutes to administer.

Item-level and test-level scoring of Letter Knowledge will be fully automated for users of digital applications. Touches or clicks on the screen will automatically be scored as correct or incorrect. The technology will efficiently tally raw scores, assign performance levels, and send data to the cloud.

**Phonological awareness.** Phonological awareness (PA) is the ability to detect and manipulate sounds in spoken language (e.g., identify words that rhyme, blend sounds together to form a word). Research demonstrates that individual differences in PA are highly stable from late-preschool forward (Anthony & Lonigan, 2004; Burgess & Lonigan, 1998; Lonigan et al., 2000; Wagner et al., 1997) and they are strong independent predictors of reading and spelling (Lonigan et al., 2000; MacLean, Bryant, &

Bradley, 1987; Storch & Whitehurst, 2002; Wagner et al., 1997). Spanish speaking ELLs' Spanish PA is a strong predictor of both Spanish and English literacy (Lindsey et al., 2003; López & Greenfield, 2004; Manis et al., 2004). PA facilitates reading by letter-sound correspondence and by analogy (Walton, 1995).

Along the dimension of linguistic complexity, monolingual English speakers generally acquire word-level PA before they acquire syllable-level PA, syllable-level skills before onset/rime-level skills, and onset/rime-level skills before phoneme-level skills (Adams, 1990; Anthony et al., 2002; Anthony, Lonigan, Driscoll et al., 2003; Goswami & Bryant, 1990; Ziegler & Goswami, 2005). In other words, PA progresses from large and concrete units of sound (e.g., syllables) to small and abstract units of sound (e.g., phonemes). This pattern of development does not hold true for Spanish speakers (Anthony, Williams, et al., 2011). Along the dimension of task complexity, both English and Spanish speakers can generally detect similar and dissimilar sounds before they can manipulate these same sounds, and they can blend phonological information before they can delete information (Anthony, Williams, et al., 2011; Anthony, Lonigan, Driscoll et al., 2003). Despite the variety of operations that can be performed on different size linguistic units, nearly all PA tasks index the same underlying phonological ability but some do so better than others at different points in development (Anthony & Lonigan, 2004; Anthony et al., 2002; Schatschneider et al., 1999).

Many PA tasks were considered for TX-KEA. Elision tasks tend to yield floor effects with Kindergarten age children, while rhyme and alliteration tasks tend to yield ceiling effects. Expressive PA tasks are generally uninviting for young children and performances are confounded by speech development (Anthony, Aghara, et al., 2011). Elision multiple choice tasks are not sensitive (Anthony, Williams, et al., 2011). We decided to use a blending multiple choice task for TX-KEA because it has excellent face validity given that educators teach blending skills, it is sensitive to differences among kindergartners, is fun and engaging for young children, can be reliably administered using digitally recorded voice files, and closely aligns with the Texas standards. Texas guidelines state that by the end of pre-Kindergarten children should be able blend words into compound words, blend syllables into words, blend onset and rime into words, and recognize pictures of words formed by blending two individual

phonemes. A blending multiple choice task can seamlessly assess all levels of linguistic complexity noted in the Texas PreK guidelines and TEKS, and can thereby assess the full range of PA abilities expected of entering Kindergarteners.

The 190 multiple choice items currently being scaled for SRCBM ask children to point to an illustration of a word formed by blending together words (e.g., “Point to... butter...fly”, “Enséñame... lava...platos”), syllables (e.g., “Point to... tie...ger”, “Enséñame... ti...gre”), onset and rime (e.g., /k/ + ache = cake), and individual phonemes (e.g., /t../r../ei../n/=train in English; /t../r../ε../n/=tren in Spanish). Item difficulties were manipulated by varying phonological similarity of the targets and foils, by varying the interstimulus intervals, and by varying complexity of syllable structures. We prioritized use of sounds common to both English and Spanish (e.g., /p/, /t/, and /k/) in an effort to avoid test bias.

Separate English and Spanish versions of TX-KEA Phonological Awareness will be developed to reflect the different linguistic characteristics of English and Spanish and to reflect the different developmental trajectories of acquisition of English and Spanish phonological awareness. Although all levels of linguistic complexity, or item types, will be represented in the final item selections for TX-KEA to assure alignment with state standards, the distribution of these item types will be determined by optimizing coverage and sensitivity along the performance levels demonstrated by entering Kindergarteners. We expect English and Spanish versions will each include approximately 25 items and will take approximately 5 minutes to administer.

Item-level and test-level scoring of Phonological Awareness will be fully automated for users of digital applications (see scoring for Letter Knowledge).

**Writing subtest.** Emergent and early writing skills that develop from birth to age five have a consistently strong relationship to later conventional literacy achievement. Young children’s name writing and invented spelling abilities are some of the strongest predictors of their later decoding, ( $r$ ’s = .49, .58), reading comprehension ( $r$  = .33), and spelling skills ( $r$ ’s = .36, .69; National Early Literacy Panel, 2008). Yet writing skills are less likely to be tested than basic literacy skills, such as naming letters, which might lead teachers to narrow their instructional focus to the specific literacy skills assessed (Bornfreund, 2013).

There is evidence that large numbers of teachers can be trained to reliably assess children's name writing and invented spelling skills (Invernizzi & Hayes, 2004; Ford, Cabell, Konold, Invernizzi & Gartland, 2013). Early writing skills encompass three components, only two of which will be assessed in TX-KEA: (1) the mechanics of producing marks on paper, (2) orthographic knowledge of how written language works, and (3) compositional skills of attributing meanings to the marks on paper (Cabell, Tortorelli & Gerde, 2013). Composition skills will not be assessed due to time constraints and because it is more difficult to ensure standardized scoring of these skills for young children who typically rely on adults to act as a scribe for recording messages containing multiple words and sentences. The Texas Pre-K Guidelines and ITELG will be used to develop items that appropriately reflect the range of writing skills students may possess at Kindergarten entry. These standards emphasize the importance of accepting children's approximations of letters and letter-like forms not written neatly on lines; therefore, ratings of mechanics will focus on more simple tracing skills.

To provide a genuine purpose for writing, the writing assessment will prompt children to create a party invitation by following a series of instructions for three tasks: (1) tracing dotted shapes to resemble balloons on the outside of a folded card; (2) writing their first name inside a folded card to indicate the party is in their honor; and (3) using invented spelling skills to attempt to write a list of names for invitees to the party on a separate 8.5" x 11" paper. To control the difficulty of the tasks and ensure coverage of a full range of invented spelling skills appropriate to the differing English and Spanish orthographies (Helman, 2004), the words children will be asked to spell in English will represent simple CVC spelling (e.g., Sam, Nel, Kim, Dan) and CVC and CVCV spellings in Spanish (e.g., Paz, Mama, Rico, Sol). All writing tasks will be directly administered to individual children by teachers who provide standardized verbal instructions and pre-printed paper-and-pencil materials for the child. We will develop an initial item pool of approximately 20 items; the final subtest will include about 8 items and require 5-7 minutes to administer.

Teacher will use an electronic device to read verbal instructions and to time the task so that they can prompt the child to move on to the next word using standardized intervals. Teachers will immediately

score the first tracing task on their electronic device by selecting the most appropriate level on a 3-point rating scale. The second name writing component will be scored according to different ability levels representing: (1) scribbling, (2) letter-like forms but no pertinent graphemes from the child's name, (3) at least one pertinent grapheme, (4)  $\leq 50\%$  of pertinent ordered or unordered graphemes, (5)  $> 50\%$  of pertinent ordered or unordered graphemes, (6) 100% of pertinent ordered or unordered graphemes, (7) 100% of ordered graphemes. Teachers will type the child's first name and the TX-KEA software will provide a space for teachers to select which graphemes were recorded and indicate if they were correctly ordered or not. Teachers will immediately score the third invented spelling task with CVC/CVCV words by giving 2 points for each correct letter and 1 point for sensible errors (e.g., representing the short vowel a as o, i, e). During the piloting phase we will: (a) identify appropriate time intervals before prompting children to spell the next word; and (b) determine if teachers can be reliably trained to score children's name writing immediately as they observe the task or if they require additional time for delayed scoring.

**Mathematics.** Research indicates that children in early childhood through Kindergarten entry are capable of several types of mathematical thinking, including counting, operations on number, and geometry (Ginsburg, Cannon, Eisenband, & Pappas, 2005; Ginsburg, Klein, & Starkey, 1998). When conceptualizing the types of math tasks that might be included on the TX-KEA, information from the Texas Essential Knowledge and Skills for Mathematics (TEKS, Kindergarten), the Revised Texas Pre-K Guidelines, the Common Core Standards for Mathematics/Kindergarten, and the Standards and Focal Points from the National Council of Teachers of Mathematics (pre-K -2) were evaluated. Fortunately, there is a great deal of overlap in what each set of guidelines considers important in the mathematics domain.

**Numbers and Counting:** Throughout childhood, children spontaneously recite the counting words, with 3-year-old children sometimes reaching numbers as high as "ten" (Durkin, Shire, Riem, Crowther, & Rutter, 1986). As children progress into Kindergarten, children are better able to count relatively large numbers through 100 (Irwin & Burgham, 1992). The first ten or so number words are essentially nonsense syllables, with no underlying structure or meaning (Fuson, 1991; Ginsburg, 1989)

and must therefore be memorized in a rote fashion. But after that point, virtually all languages exhibit some degree of structure. Therefore, we plan to have a counting task to determine “how high” a child can count prior to making an error. In addition to rote counting, counting sets is also a common task included in standards evaluating math skills in children. Counting sets of logically grouped items (e.g., linear arrays, circles, and rectangles) will be included on the TX-KEA through 20 items. Random groupings of items will be included up to 10. Teachers will be able to qualitatively record the type of error that occurred as children tried to count objects (e.g., number series, tagging). Gelman and Gallistel (1986) report that even when inaccurate, children’s counting skills seem to be constrained by important counting principles (e.g., one-to-one principle, stable order principle, cardinal principal, abstraction principal, and the order irrelevance principal). The TX-KEA will also evaluate a child’s ability to recognize and recall the names of numerals (1-30) in multiple choice and free response formats. Numeral naming and recognition is an important component of formal mathematical skills (e.g., Bialystock & Codd, 1996; Miller, Smith, Zhu, & Zhang, 1995).

**Operations and early algebraic reasoning.** In addition to counting and enumeration, standards stress the importance of operations and early algebraic reasoning. Research has demonstrated that even preschool aged children have the ability to compute sums using informal math strategies (e.g., Starkey, 1992; Huttenlocher, Jordan, & Levine, 1994). In the TX-KEA, these skills will be evaluated by determining a child’s ability to solve addition and subtraction word problems to 10 while using fingers, pictures, or hands. Another way to evaluate early algebraic reasoning skills is by determining if children are able to recognize, describe, and extend patterns. Therefore, we plan to evaluate children’s ability to make and extend patterns with objects (e.g., shapes).

**Geometry.** While the research on the importance of counting skills in Kindergarten is well established, there is some consensus that geometric knowledge undergo considerable development during the preschool years and provides a foundation for the acquisition of formal mathematical knowledge during elementary school (e.g., Beilin & Klein, 1982; Geary, 1994; Clements, Swaminathan, Hannibal, & Sarama, 1999; Newcombe & Huttenlocher, 2000). Standards for Mathematics in K recognize the

importance of geometry. Therefore, TX-KEA will evaluate the ability of classify shapes and identify three-dimensional solids (e.g., cone, cube, sphere).

**Mathematics in the Real World.** The Texas Pre-K Guidelines and the Common Core Standards for K Mathematics are similar in that that both emphasize measurement and data analysis/interpretation in real world contexts. For instance, mathematical language skills (e.g., measurement attributes) will be evaluated by asking children to identify salient characteristics of objects (e.g., longer/shorter, heavier/lighter, tall/short). A child's ability to make quantity comparisons among of groups of objects (e.g., more than, less than of a measurable attribute) will also be evaluated. We expect that the final TX-KEA Math Assessment will contain no more than 30 items. During the scaling studies (Year 2), we plan to assess children on approximately 50 items. Due to the importance of children's number knowledge during the Kindergarten year, we plan to pilot at least 20 items from the Number and Counting Domains, and 10 items each from the 3 other areas (i.e., Operations and Early Algebraic Reasoning, Geometry, and Mathematics in the Real World). This number seems reasonable given the fact that our prior work in this area in pre-K (Landry, Assel, Gunnewig, and Swank, 2008, Circle Phonological Awareness, Language, and Literacy Screener, Math Supplement; C-PALLS+) contained 26 items. Validity of the Math Screener was assessed with the Child Math Assessment (Starkey, Klein, & Wakeley, 2004) and Applied Problems subtest of the WJ-III. The C-PALLS+ Math subtest was found to correlate strongly ( $r = .77$ ) with the Child Math Assessment and was found to be moderately correlated with the Applied Problems subtest of the WJ-III ( $r = .55$ ).

**Science and engineering subtest.** Despite emphasis in early learning standards on science as a key aspect of cognition and higher-level reasoning, children from Head Start programs enter Kindergarten with science school readiness scores that are significantly lower than other domains (Greenfield et al., 2009). Research shows little effective instruction is devoted to science topics within typical early childhood classrooms (Greenfield, et al., 2009; Nayfeld, Brenneman, & Gelman, 2011; Sackes, Trundle, & Bell, 2013; Tu, 2006). Including science and engineering topics in the TX-KEA has the potential to increase teachers' attention to scientific phenomenon because this is currently a largely untested domain

in Texas Kindergarten readiness measures. The science and engineering subtest will include all disciplinary core ideas in the National Research Council's (2012) framework for science education including: physical sciences, life sciences, earth and space sciences, and engineering and technology applications of science. The Texas Pre-K Guidelines and ITELG will be used to development subtest items to ensure assessed disciplinary knowledge is appropriate students entering Kindergarten; however, a shortcoming of these guidelines is that they do not directly address engineering design, which constitutes a large portion of the Next Generation Science Standards (NGSS, 2013) performance expectations for Kindergartens. Therefore, we believe it is important to also create items that address engineering principles (e.g., considering various ways to solve a problem such as a tower of blocks that falls down).

Although we will develop an initial item pool of approximately 50 items, the final subtest will include about 20 items and require 5-7 minutes to administer. The measure will be designed to include two items types: (1) stimulus picture at top described in verbal prompt with three answer choice pictures presented below, or (2) only a verbal prompt (no stimulus picture) with three answer choice pictures presented. Both types are receptive tasks in which the child will be given a verbal question to respond to by pointing to the correct answer. An example of the first item type is: "This bird is a cardinal (top stimulus picture). Which picture shows where this bird lives?" A: nest, B: reef, C: desert. An example of the second item type is: "Which of these will float in water?" A: penny, B: ball, C: hammer. The rationale for these items types is that a receptive task reduces demands of vocabulary knowledge to more accurately measure student's understanding of scientific phenomenon. The Spanish version will be a direct translation, using the same items and pictures as the English version, but it will be validated as an individual subtest because it is possible that the two versions will not be equivalent in difficulty. All science and engineering items will be individual, direct child assessments administered on an electronic device with a minimum screen size of about 7 inches in width to ensure clarity of the three pictured answer choices. Administration on an electronic device will allow the teacher to immediately select the answer choice pointed to for automatic scoring as either correct (1 point) or incorrect (0 points).

**Approaches to learning subtest.** This teacher observation rating scale will include four skill areas that are important characteristics of young children's readiness for formal schooling. These areas include: initiative taking, curiosity, persistence, and cooperation. The first phase of development of this scale will be guided by rating scales that include these behaviors and by research that has examined aspects of these four areas. Initially, a large pool of items (>10 for each behavior) will be developed for field testing and this number will be decreased in light of data that shows which items provide the most information about a child in each area. In selecting items, consideration will be given to the types and range of contexts (e.g., classroom, playground, and cafeteria) where these four behaviors should be able to be observed. Teachers will rate each item on a scale of 1 to 3 with 1 being rated when the behavior never or rarely occurs, 2 being rated for sometimes occurs, and 3 for often or regularly occurs. Information from this measure should allow teachers to better understand which children need targeted support for one or more of these approaches to learning and for schools to develop professional development and programing to help children adopt these skills.

**Physical Development (Gross Motor, Fine Motor, and Physical Health).** During the development of the TX-KEA subtests for direct assessment of Motor Skills (Gross and Fine) and an observation rating of Physical Health Status of children, several goals were outlined. The primary goal was to develop a brief assessment that could be completed by teachers in a short amount of time. A secondary goal was to develop specific item content that was relevant for the classroom. That is, evaluation of fine motor skills that have the greatest bearing on later academic achievement (e.g., visual and fine motor skills necessary for writing) were seen as being more important than fine motor skills that necessary for daily living (i.e., the ability to tie shoes). This approach was taken because the collaboration understands that usability of the TX-KEA would be compromised if the assessment took more than 45 -55 minutes to complete. Finally, evaluation of Gross and Fine Motor skills of Kindergarten aged children should be conducted within a context that is similar to a game or project format. Fine motor control involves the coordination of movement to produce small precise movement (e.g., picking up a raisin or pebble, holding a pencil for writing, buttoning buttons). Gross motor

movements involve large motor muscle movements required for waving, running, hopping, throwing a ball (Kimmel & Ratliff-Schaub, 2007).

In early childhood, there are several well regarded assessments for evaluation of gross and fine motor skills. For instance, the Peabody Developmental Motor Scales, Second Edition (PDMS-2; Folio and Fewell, 2000) is suitable for use with children up to 5 years of age. In addition, the Bayley Scale of Infant and Toddler Development-Third Edition (Bayley, 2005) also provides for an excellent evaluation of child motor skills through 42 months of age. However, each of these measures requires a fairly significant amount of training in administration and could take 30 minutes to administer per child. In contrast, teacher ratings of child motor skills are often used within Head Start agencies and public preschool programs. The TX-KEA plans to use a combination of direct assessment and teacher ratings within the physical health domain to evaluate the Motor and Physical Health of children.

**Item Content for Fine and Gross Motor Scales:** During the piloting and scaling phase of the project, the fine motor skills of subset of children will be evaluated with the following tasks. As there is a great deal of similarity in the tasks that are included in tests and ratings scales that measure fine (and gross) motor skills at this age, much of the focus during the piloting phase will surround developing procedures that will allow teachers to reliably score child performance. Evaluation of a range of fine motor skills such as the ability to demonstrate a correct tripod grasp of a child size writing implement, the ability to copy simple geometric forms (e.g., square, triangle). While these tasks might be considered to be relatively easy to administer, they present some challenges for scoring and more importantly ensuring the reliability of scoring procedures across teachers, schools, and school districts. A variety of scoring procedures including dichotomous scoring (i.e., pass/fail) and partial credit ratings (e.g., not developed, emerging, established) will be considered to determine the best methods to ensure accurate scoring.

Evaluation of gross motor skills has the potential to be one of the more game like, or playful, parts of the TX-KEA. In fact, it is quite easy to make an argument that developing procedures to ensure that children enjoy the gross motor portion of the TX-KEA would be necessary to ensure optimal child performance. During the piloting phase, our research team will develop game-like procedures that

evaluate gross motor skills during transitions between other subtests. For instance, like Simon says, the examiner would ask children to hop on one foot then each foot or pretend to walk on a balance beam (i.e., tape on floor, or throw and catch a tennis ball from a distance of 6 feet using two hands.

**Item Content for Physical Health Status.** The Physical Health Status rating scale is being conceptualized as a way for teachers to intentionally evaluate a child's health habits as they might relate to a child's ability to be successful academically. While it is recognized that children in Texas cannot register for Kindergarten unless they have demonstrated an up-to-date immunization record and most school districts have caregivers complete a general health history questionnaire (e.g., history of illnesses, surgeries, known or suspected physical disabilities, allergies, etc.), the Health Status Questionnaire that will be developed in the TX-KEA will focus on health within the classroom. Item content will include ratings centered on determining whether or not the child's health presents any challenges for the academic environment (e.g., fatigue, increased absences due to illness, chronic observable conditions such as runny nose due to allergies). In addition, we plan to develop item content to document whether the Kindergarten student can take care of personal responsibilities related to toileting, feeding independently, hand washing, and nutrition (e.g., willingness to eat healthy food provided in lunch). We anticipate having between 10-15 items on the fully developed Physical Health Status questionnaire. In addition, teacher feedback on 3, 4, or 5 point Likert scales will be collected to determine the most efficient data collection modality.

**Social and emotional domain.** Social and emotional development across the first five years of life includes a broad range of distinct skills that together support a vast array of abilities critical for school readiness (Huffman, Mehlinger, & Kerivan, 2000). These include, but are not limited to, getting along with others, controlling behavior and emotions, taking initiative, solving novel problems, and understanding and appreciating characteristics of others such as beliefs and emotions. The Social and Emotional domain of the TX-KEA will include measurement of social competence (e.g., forming relationships, awareness of others, taking initiative, cooperation), self-regulation (e.g., behavioral control, executive functions, emotional control), and emotion understanding. These components were selected as

they align with the Texas Pre-Kindergarten Guidelines as well as with standards from many states that describe the social and emotional skills that children should have demonstrated competencies in by the start of Kindergarten. Despite consensus that strong social-emotional skills are essential before, during, and after the transition to formal schooling (e.g., Rimm-Kaufman, Pianta & Cox, 2000), these competencies are typically untested in most Kindergarten readiness assessments or only evaluated with teacher-created checklists (CCSSO, 2011). We will use a multi-modal method for assessing skills across these sub-domains. This will include teacher observation rating scales as well as several approaches to direct assessment of the child. We will determine which method to use based on what current research describes is the most sensitive and valid approach for each set of skills in this area.

**Social competence subtest.** The first of these three broad areas of development, Social Competence, will be measured using a teacher observation rating scale because direct assessment of skills in this sub-domain are not an effective approach, given that children need to demonstrate the skills through interactions with others. Item development for this rating scale initially will include a large pool of items (approximately 40 items) that cover children's social behavior in interactions with adults and same-age peers, including but not limited to appreciating others' ideas, showing flexibility in cooperating with others, taking initiative in social interactions, showing behaviors that promote forming relationships with others. The number of items will be decreased after completion of the field testing phase. The behaviors included in the scale will be selected based on their prominence in existing, validated observation rating systems that assess social competence as well as in state standards. As teachers will need to be able to observe these behaviors early in the fall at the start of Kindergarten, the items will need to include behaviors that can be seen in common everyday classroom situations so that teachers will be more likely to observe children demonstrating them. After teachers have had the opportunity to observe children in different classroom activities and social situations, they will rate children on a scale of 1 to 3 as to whether the child: 1-rarely; 2- sometimes; or 3- often demonstrates the behavior.

**Self-regulation subtest.** Self-regulation, the second sub-domain of the social-emotional assessment, will use direct assessment approaches to measure a range of skills that are important for

transition to Kindergarten, as they include children’s goal directed behavior and their ability to regulate behavior and inhibit responses related to their arousal when tasks are affectively engaging (Garon, Bryson, & Smith, 2008). These skills have been shown to predict children’s ability to solve novel problems and are strongly related to academic success (Lezak, 1995) The skills in this sub-domain are appropriate for assessment at the beginning of Kindergarten, as they show large changes across early childhood into early Kindergarten and are thought to provide a foundation for success as children enter formal schooling (Blair, 2002). Although prior to Kindergarten children need adult support in the form of “other regulation” to control their behavior, by Kindergarten they are showing an increasing ability to self-regulate behavior, allowing them to more competently participate in classroom routines and instructional activities (Blair, 2002).

There are several distinct skills that are considered important for understanding the development of self-regulation including: executive functions, effortful control, and attention (Rueda, Posner, & Rothbart, 2005). There has been great progress over the last decade in the development of effective approaches for measuring these skills using short tasks that are directly administered to the child (Miyake et al., 2000). Thus, we will incorporate direct approaches for assessing skills in the self-regulation domain that are informed by a large research base on effective measurement in this area (see Garon et al., 2008 for review). Tasks assessing aspects of executive function will include those that put demands on working memory and response inhibition as well as a continuous performance task to assess attention, as attention is central to the construct of executive function (Garon et al., 2008). Tasks accessing working memory will include forward and backward digit and word span tasks as these are efficient to measure, are age appropriate, stable across later ages, and predictive of later academic skills (Gathercole, Pickering, & Ambridge, 2004). While six to eight digit and word span tasks will be field tested, the final assessment will include only those that show that appropriate item functioning and sensitivity. The child’s score on each task reflects the longest sequence repeated correctly.

In the self-regulation sub-domain, several complex inhibition tasks also will be included with the selection of these guided by tasks shown in current research to be appropriate for this age range, easy to

be administered using technology approaches, and predictive of children's ability to control their behavior in situations that are arousing, thus making it more difficult to inhibit a prepotent response (Carlson & Moses, 2001). We will include a computer-administered version of the Bear and Dragon task, Simon Says, and the Grass-snow task. In each task, the child must hold a rule in mind, respond according to the rule, and inhibit a prepotent response. These three tasks are particularly appropriate to include in a Kindergarten readiness assessment as significant increases in children's accuracy is reported across three to five years of age (Carlson, 2005; Murray & Kochanska, 2002). This second set of tasks tap into what researchers label effortful control skills. While effortful control and executive function skills often are shown to be moderately correlated, they also reflect distinct skills, as they measure different aspects of the broad self-regulation construct and predict different later social and cognitive competencies (Garon et al., 2008).

The last skill to be measured in the self-regulation sub-domain is sustained attention and this will be assessed with a continuous performance task where the child has to press a button when the target stimulus appears on the computer screen (Mahone, Pillion, & Hiemenz, 2001)). While there are large increases in children's sustained attention skills across 3 to 5 years of age, at 5 years of age there is still a range of competencies on this task demonstrating its sensitivity to individual differences at entry into Kindergarten (Akshoomoff, 2002). While sustained attention, executive function, and effortful control skills are all correlated, combining them into one domain assessing self-regulation is expected to provide the most sensitive measurement scheme to cover the breath of skills described for self-regulation.

**Emotion understanding subtest.** Assessment of emotion understanding is the third sub-domain in the Social-Emotional assessment. This skill area will be included as it has frequently been shown to predict social competence and contribute to academic success (Saarni, Mumme, & Campos, 1998)). This subscale will include direct assessment of children's ability to label emotions and understand how others react emotionally in particular situations. By early Kindergarten children should have developed competency in their knowledge of basic emotions, a competency that links to increased social awareness, positive social interactions, and decreases in social alienation (Fine, Izard, Mostow, Trentacosta, &

Ackerman, 2003). Classic emotion understanding tasks (Denham, 1986) will be adapted for administration through computer approaches that can provide important information about a child's skills in this area with short engaging tasks. First, in the verbal labeling component of the task, children will be asked to match five photos of facial expressions to five emotion words. They will be asked to verbally report the characters' feelings and then in the nonverbal component to select the correct verbal label for the characters' feelings. The second phase of the emotion understanding measure will require the child to predict a character's emotions in different scripted situations, with the situation illustrated with drawings. The child will show their understanding of how the character will feel by selecting a picture of the correct emotion from four different pictured emotions. A total number of correct responses across both of these tasks will be scored. Information from this set of tasks should provide teachers with information that allows them to individualize their instruction with children so that those with very limited knowledge about emotions can receive more targeted support.

#### ***Plan to Set Levels of Performance to Characterize a Child's Learning and Development***

Setting levels of performance requires that the sample on which you are developing the levels covers the full range of Kindergarten students' ability at the beginning of the year. To this end, we will select our sample in order to obtain a representative and diverse group of students. As discussed in the Research and Evaluation section of this proposal, we will examine the items and assessment as a whole for any biases with respect to demographic characteristics such as gender and ethnicity in order to insure the fairness of the assessment across as many different demographic groups as possible.

With a reliable, valid, and fair assessment and a representative sample, we will be able to examine the distribution of scores on students' underlying ability for breaks that indicate natural cut-offs in the ability scores. In addition to examining the distribution of the scores themselves, we will also examine correlations between the TX-KEA domains and standardized measures of like constructs. By linking the TX-KEA with standardized measures, we will be able to identify points on the continuum that correspond to a nationally-normed sample. This will increase our confidence that the performance levels chosen reliably distinguish between kids who are typically developing and those who need some

individualized instruction, either to catch up to their peers in areas in which they are struggling or to enhance their knowledge in areas in which they are proficient.

Finally, once the cut-off scores have been determined empirically, we will also bring in stakeholders to re-examine them in relation to the items and the standards that those items are designed to measure. The items whose average difficulty falls within the range of cutoff scores for a given level (i.e., emerging, typically developing, proficient) represent the skills that students at that level need to master in order to catch up with their peers. In this manner, action plans can be created for each level of performance. By definition, the action plan for a student at the “emerging” level will include the skills represented by the easiest items that a majority of students are able to answer correctly at the beginning of Kindergarten. The “typically developing” level will represent the next most difficult constructs, followed of course by those at the more difficult end of the continuum that only students who are proficient will be able to master. Therefore, the developmental levels will be empirically-supported, grounded in the standards for each domain, and include an action plan reflective of the standards represented at each level.

### **Planned TX-KEA Reports and Interpretation Guides**

For an assessment to be useful, it must have three components. First, it must be psychometrically sound. An assessment is worthwhile only to the extent that it reliably and validly measures what it purports to measure. Second, the results from the assessment must be easily accessed. The results must be made easily accessible to the teachers, and the approach to technology must include the perspective of those who will actually be using it in the classroom. Finally, the results must be interpretable and actionable. A score on an assessment is just a number until a teacher can take action in response to what it represents in terms of a student’s academic progress. Our approach is that all three of these factors must be addressed in the approach to assessment and reporting.

**Psychometrics.** As described in the Research and Evaluation section of this proposal, several different types of reliability and validity (e.g., convergent and predictive validity) will be examined with the assessment using widely accepted statistical methods. Item response theory (Baker, 2002; Embretson & Reise, 2000) and structural equation analyses will be conducted to insure that the assessment is reliable

and valid and provides good coverage of ability levels of children in Kindergarten.

**Accessibility.** To ensure that the system is easily accessed, multiple platforms (e.g., PC, iOS, Android) will be supported so that districts will be able to take advantage of the assessment regardless of their choice of technology (see Technology Approach section for more details). To ensure that the data is easily accessed, there will be multiple views of the data tailored to the user and the purpose for which it is being viewed.

Teachers will be able to view their students' data in several ways in order to most effectively tailor instruction to the needs of each child and the class as a whole. Because teachers will be conducting the assessments, the first view of the data teachers will need is the status of the assessments. Thus, the initial interface for teachers will be a student summary page, where all of the students in the class will be listed. On this page, teachers will clearly be able to see which tests have been administered to which children, and for students with unassessed domains, teachers will be able to launch the assessment directly from this centralized view. Teachers will be able to conduct the entire assessment at once or in multiple sessions, and once an assessment for a given domain has been completed, it will not reappear in the assessment list.

Once all the students have been assessed, teachers will want to use the results to adapt or focus their instruction to meet the needs of the classroom. This will be accomplished by creating different views of the data based on which of several purposes the teacher is using the data. First, teachers will want to see the results of each individual student after the assessment is completed. Second, teachers will want to take a step back and view the classroom as a whole. Third, and in between these extremes, teachers may want to identify smaller groups of children that can benefit from the same individualized instruction in certain domains. Finally, Spanish-English bilingual students' comparative proficiency across languages can inform teachers' instructional practices.

The individual student view will present students' scores on each domain for both Spanish and English and their corresponding level of performance (e.g., emerging, typically developing, proficient). This view will give a holistic view of a student's abilities, covering both languages and all

domains, in order to identify the student's greatest areas of need. The data will be sortable by score separately for both languages in order to facilitate the identification of stronger and more challenging domains within each language. Moreover, this view of the data will be printable in order to share the results with parents so that they are aware of their child's performance on the assessment.

At the classroom level, identifying the areas in which the entire classroom could benefit from additional instruction is essential for planning whole group activities that address the needs of the entire classroom (McDonald Connor et al., 2009). For example, if class average scores for the STEM domain are the lowest of all the domains, a whole-group read aloud could feature a book with more STEM concepts and vocabulary. This will be accomplished with a classroom view of the data, in which the classroom averages for each domain are presented on a single screen, along with the developmental levels of performance for the average scores. Similarly, to facilitate the organization of small-group instruction, a student score summary similar to the student assessment summary will list the students in the class and their scores on each of the domains. The teacher will be able to sort the data for the class by any of the domains. In this way, when preparing a lesson, teachers will be able to identify the children most in need of additional instruction.

**Interpretability and Actionability.** Finally, the scores that all of the users see must be interpretable and actionable. The item response theory analyses on which the assessment is based yield a theta score for each student, which indexes the student's underlying ability on a given domain. However, these theta scores are generally in standardized units that are difficult to interpret ( $N[0,1]$ ) to someone unaccustomed to doing so. Therefore, the scores on the assessment will be transformed to a scale of mean=100 and standard deviation = 10. During Phase 4, the validity analyses will also allow us to equate the new assessment with existing, norm-reference measures of a similar construct. We will identify scores that indicate a student's level of achievement for a given subtest, which can be turned into cutoff scores that can guide teachers' instructional practices for both individual children and the classroom as a whole. Similarly, an overall score representing all of the individual subtests will be created during the Phase 4 validity analyses to give an overall score of students' school readiness.

Because the data will be collected using an electronic device (i.e., personal computer or tablet), scoring for each test will be available immediately upon completion of the test. As described in the Research and Evaluation section of the current proposal, the analyses in Phase 3 will establish the discrimination and difficulty of each item. From these, a student's latent ability can be estimated. We will employ the technique of Thissen and Orlando (2001), which uses sum scores to yield maximum likelihood estimates of theta that are close approximations of the theta score estimated using the full pattern of responses. Conceptually, the technique averages the theta estimate for all possible patterns of item responses for a particular sum score, weighted by the probability of the pattern. In other words, this technique results in scores that are on a scale that is easy for teachers to interpret, yet provide information about the child that is nearly as informative as a true item response theory theta score.

#### **Integration of the TX-KEA with Existing State Data Systems**

In 2013, TEA began the roll out of TSDS with the implementation of the Unique-ID system for all students in the 1237 Texas school districts. The TSDS will continue to roll out in phases over the next four years making the system available to educators across the state. In the 2013-2014, school year approximately 80 districts with a 700,000 student population from Pre-K - 12 will participate in TSDS.

TX-KEA will be fully compatible with TSDS. TSDS was designed to be able to accommodate a variety of assessments, both those given statewide, such as the State of Texas Assessments of Academic Readiness (STAAR) that is administered to every student in the state several times over the course of their school career, and any assessment(s) that a local education agency (LEA) chooses to use with its students. The Texas Education Data Standards are based on the national EdFi XML core, which are compatible with the Common Education Data Standards. They provide a common framework for creating a data file in a format (i.e., XML) that can be read by the TSDS system.

Once the set of items that will comprise the TX-KEA are finalized after Phase 3 of the project, it will be possible to define the data elements that will need to be uploaded to TSDS. The TEDS, ensures that students belong to certain teachers, schools, and districts, and are identified in the data file so that each one can view the appropriate data. Once an LEA is ready to upload their data, it will need to be

transformed into the appropriate XML format, which is seamlessly built into the guideVue app. The LEA will initiate the transformation process from within the application, and the data file will be created and made available for download to the users secure server. The transformation process will happen behind the scenes and will not be visible to the user. Thus, teacher reports and scores will be immediately available upon completion of subtest(s) and school- and district-level reports will be available within 12-24 hours after the LEA uploads into TSDS. Currently, the TSDS provides multiple reports for educators (see Figure 2. below). These reports can be easily modified to include new TX-KEA data requirements.

**LOCAL ASSESSMENTS**

Jump to subcategory: Benchmark Assessments

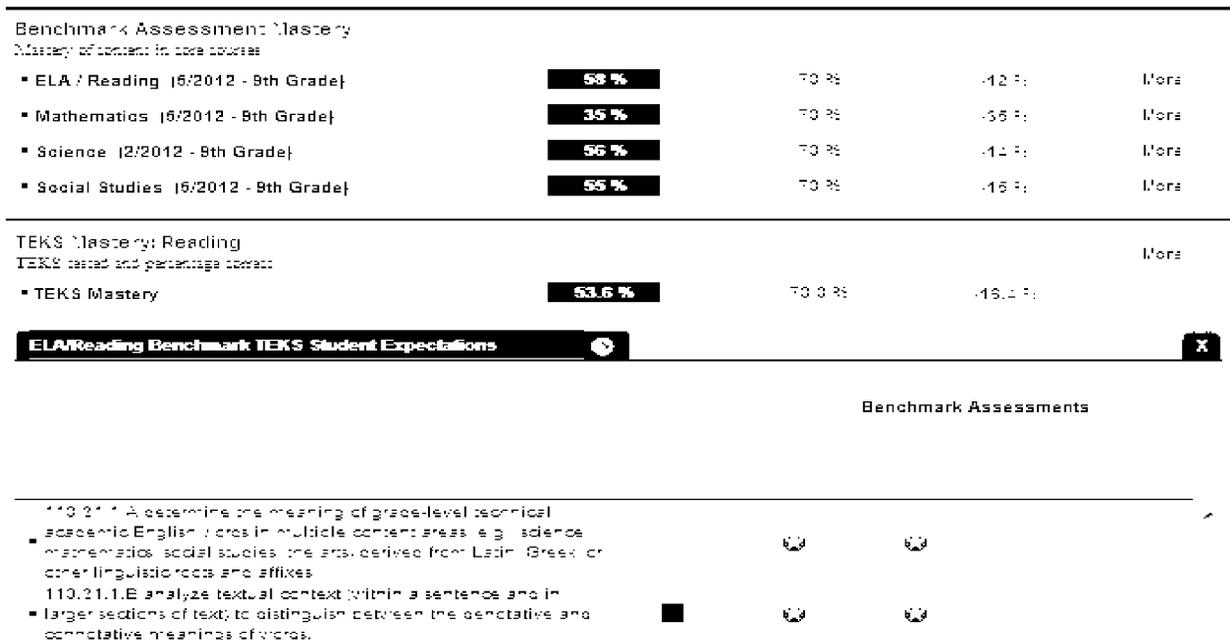


Figure 2. Student report view in the TSDS.

**Kindergarten Entry Assessment Development Plan**

The development of TX-KEA is predicated on finding the most effective way to evaluate the constructs of interest (e.g., Language, Vocabulary, Letter Knowledge, STEM, Approaches to Learning, Physical and Motor Development, and Social/Emotional Development). An iterative development process including initial item conceptualization, discussion of items within focus groups, piloting items,

scaling the items within large samples, and evaluation of concurrent and predicative validity will be completed across the 4 year project. Upon completion, the TX-KEA will be used widely across the state.

We will employ a systematic design process that incorporates adult learning theories to produce accessible and effective teacher and administrator trainings that end users find informative and feasible to complete. The process includes five steps: Analysis, Design, Development, Implementation, and Evaluation (ADDIE; for review see Sink, 2008). The ADDIE process guides how we will go about creating optimal designs for teachers, parents, and administrators by structuring ongoing cycles of informed development, field testing, and feedback. Figure 3 illustrates this process. The first needs Analysis step requires focus groups, interviews, and surveys to consider assessment needs across heterogeneous contexts. In the second step, the essential training characteristics of accessibility and feasibility for at-scale use require Design features that ensure assessment and training components will be: (a) available at no cost to teachers and schools; (b) transportable across a variety of unique program types (e.g., bilingual models, English immersion); and (c) “user friendly” so that training activities are understandable and that assessment burdens can be minimized. The next steps of Development, Implementation, and Evaluation processes will follow a reiterative cycle of: (1) teacher, administrator, and parent input, as applicable, (2) subtest item/training component development, (3) teacher field testing, (4) teacher and administrator feedback on assessment and/or reports, (5) revision and refinement of components, and (6) filming and editing of exemplar videos for all finalized assessments procedures. By applying these formative evaluation steps as subtests, reporting features, and trainings are being designed, our team will be able push revision information from early field tests into development of the next components, rather than revising the whole program at the end.

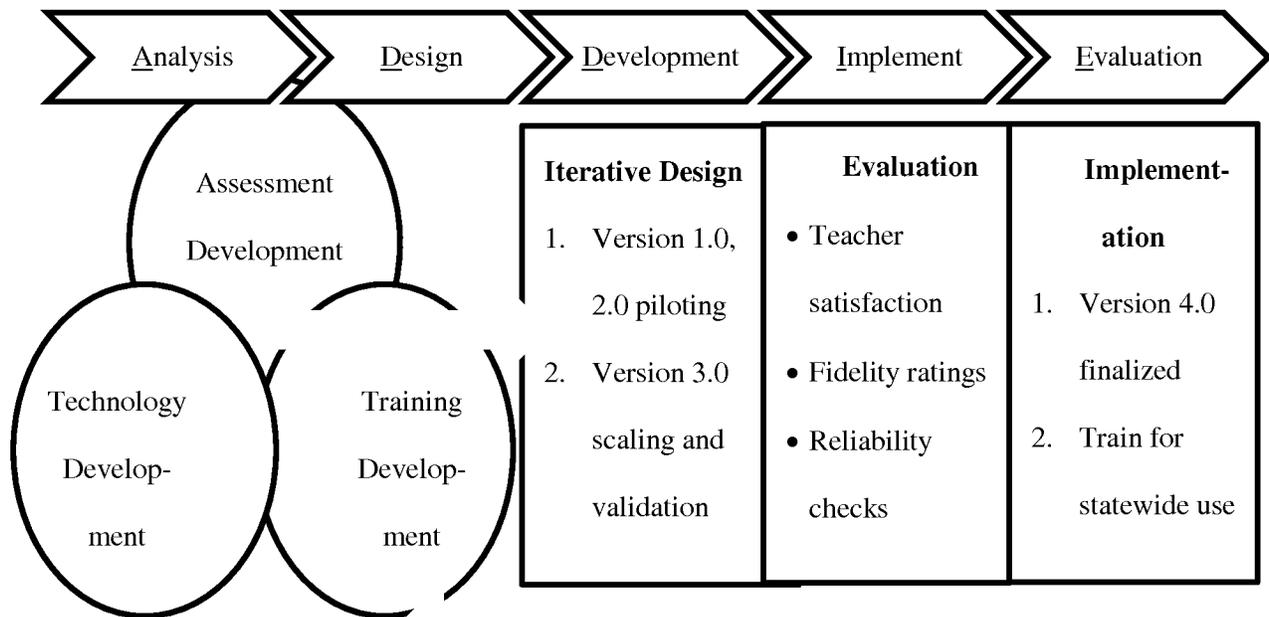


Figure 3. The ADDIE iterative design process to develop all components of TX-KEA.

The research team plans to utilize the best practices for assessing students who are culturally and linguistically diverse and principals of universal design within the assessment framework to ensure the TX-KEA can be used with typically developing children whose primary language is English or Spanish, as well as being able to be used with children who might have some type of developmental difference (e.g., language delays, articulation difficulties, slight hearing difficulties, mild forms of vision impairments, mild forms of Autistic Spectrum Disorders). Universal design within assessment includes the elements of inclusive assessment population (e.g., ELLs, children with disabilities), precisely defined constructs, accessible nonbiased items, a test that is amendable to accommodations, simple, clear, and intuitive instructions/procedures, maximum readability and comprehensibility, and maximum legibility (Thompson, Johnstone & Thurlow, 2002). For instance, in terms of language, the demographics of the state of Texas dictate that the assessment items will be required to be formulated in both Spanish and English (satisfying the goal of being inclusive).

**Considerations for English learners.** Accurately understanding and measuring school readiness skills in bilingual children is a pressing national need (Hammer, Jia, Uchikoshi, 2011). The population of young English language learners (ELL) is rapidly growing; in fact, Spanish-speaking bilingual children are the fastest growing segment of the U.S. population (NCES, 2012). Unfortunately, persistent achievement gaps remain for ELL compared to their peers throughout their schooling (Mulligan, Halle, Kinukawa, 2012). For years, the unique requirements to accurately assess bilingual children has been largely misunderstood or ignored by many researchers and practitioners (Peña & Halle, 2011). Thus, accurately assessing school readiness in this population is a priority of the proposed project.

Dual language learners experience heterogeneous early schooling experiences that range from immersion in all or predominately English instruction to transitional bilingual programs to dual language models (Branum-Martin et al., 2009). Bilingual preschoolers may have been simultaneously learning both English and Spanish from birth or they may have learned Spanish from birth and sequentially been introduced to English when they entered school (Hammer, Miccio & Wagstaff, 2003). These and other cultural or experiential factors make the population of dual language learners quite diverse. ELL's competencies in their first and second language vary such that they may know some words and concepts only in one language depending on whether exposure to these topics occurred at home or school.

Careful consideration of local priorities and the instructional model the child will experience in Kindergarten (i.e., bilingual instruction or English immersion models) must be taken into account to determine the language(s) of assessment. Many schools already have a language proficiency screening measure in place that is used in conjunction with a home language survey to determine limited English proficiency (LEP) status; however, the validity of these assessments is unknown. Based on feedback from the stakeholder and focus groups, we will provide recommendations for districts and schools to determine the language(s) of TX-KEA administration and appropriate methods for scoring depending on their choice. The TX-KEA will be fully available in English and Spanish so that dual language administration is possible if it meets local goals, such as assessing students in a dual language program. Spanish speakers represent about a third of the Texas population, with Vietnamese and Chinese being the third and fourth

most spoken languages. At this time, it is not cost effective to develop the TX-KEA in languages such as Vietnamese and Chinese. If schools only assess ELL's abilities in English this most likely will not allow for a full view of their abilities; however, the costs of dual language administration are substantial because it doubles testing time and requires bilingual examiners. Alternative approaches for choosing the language of assessment that reduce costs will be presented to stakeholder and focus groups for feedback: (a) language proficiency screening of Spanish-speaking ELL to determine the dominant language for testing, or (b) conceptual scoring in which the child is allowed to answer in English or the alternate language to calculate a total knowledge score across languages (Barrueco, López, Ong, & Lozano, 2012). For example, if the language proficiency approach is used, all ELL children from Spanish speaking homes could be administered the TX-KEA vocabulary subtest in both English and Spanish as a language proficiency measure to determine the dominant language to administer all other subtests. Prior to the end of the year administration, the language proficiency screener would need to be administered again to determine if the children's most proficient language changed across the school year.

**Accommodations for children with disabilities or developmental delays.** The TX-KEA will be designed to address important features of universal design to better accommodate the approximately 13.1% of children between the ages of 3 and 21 years qualify for special education services (NCES, 2012). A key way in which the TX-KEA will ensure universal design is by having precisely defined constructs that lend themselves to both receptive and expressive answer formats. For instance, children with language disorders and other communication disorders (e.g., Autistic Spectrum Disorders) might struggle on items that require a verbal response. Therefore, we plan to develop assessments that are flexible enough to allow children to answer by pointing or demonstrating an answer another way (e.g., touching a multiple choice answer with an elbow, nose, mouse, or other pointing device). Due to the nature of the types of tasks employed on TX-KEA subtests involving direct assessment and the level of knowledge or skills assessed by them, it is unlikely that children with severe and profound forms of Intellectual or Neurodevelopmental Disabilities would benefit from completion of the direct assessment portions of TX-KEA. We also purposefully avoided direct assessments that involved speeded tasks

because they can be heavily confounded by motor, coordination, or processing weaknesses that are completely independent of one's competence in the domain of interest.

Ensuring that the TX-KEA is designed in a way that promotes the principals of universal design will be a process that starts during the item development phase and continues through the scaling and validity studies to ensure that children with disabilities (or suspected disabilities) have not only the opportunity to complete the TX-KEA but that reasonable estimates of academic readiness can be made. Through the collaboration between UT-Health, the TEA, and recruited school districts where various stages of product testing occurs, we plan on including children with documented disabilities in all phases of the project (i.e., pilot testing, scaling, and validation). During development, the research team and consultants will develop items using a universal design focus by developing multiple formats of the TX-KEA (e.g., paper-pencil versions and an electronically administered version suitable for multiple platforms). Administration on an electronic platform (desktop, laptop, tablet) will allow the research team to ensure that the images used can be seen by children with mild impairments in vision by increasing the size of the stimulus presented on the computer screen. In addition, development of multiple modes of assessment (e.g., receptive items, expressive items, and rating scales) should allow us to provide an estimate of a child's knowledge within skill domains.

One of the ways that we will ensure universal design principals are being followed throughout the development process is by the establishment of the Universal Design and Accommodations Committee (UDAC). UDAC will be responsible for ensuring that each item meets the following criteria: (1) clarity of language and images to ensure that individual items are unbiased for all children across groups, (2) use of images that can be manipulated in terms of size to accommodate children with visual difficulties, (3) ease of administration for teachers and students, (4) availability of a sufficient item pool to allow a child with a disability to demonstrate knowledge in multiple forms (e.g., variety of item types not all requiring a verbal response), and (5) ensuring maximum comprehension in English and Spanish (clear and easy to understand instructions). Only items that demonstrate adherence to the principals stated above will be included in the final TX-KEA. Members of the Committee will include the project director, the item

development staff, an expert consultants (Dr. Judy Carta, Dr. Heather Taylor, Dr. Peña, Dr. Ford), Special Education teachers, 2 to 4 parents of children with disabilities. The Universal Design Committee will provide guidance to item developers as items are written, determine the types of reasonable accommodations that can be utilized within each subtest, and critique training plans for teachers.

### **Achieving Scalable, Accurate and Consistent Scoring**

The quality of data obtained from large-scale child assessments relies on the appropriate training of assessors (i.e., teachers) to administer and score an assessment properly. Deviations from the assessment script, coaching the child and errors in scoring will be carefully monitored with fidelity checks during the pilot testing to improve training procedures. During the Year 4 implementation, fidelity checks will also be conducted amongst a randomly selected sample of teachers. The TX-KEA will typically be scored using a technology-based approach to improve data accuracy, efficiency, and synchronization with TSDS longitudinal data system. The range of skills and abilities tested across subtests requires various types of scoring – correct/incorrect, rating scales. All data will be immediately entered into the TX-KEA software as the teacher records the child’s response. For example, simple scoring approaches will be designed such as having teachers select a red or green button located in the bottom right hand corner of the screen to indicate incorrect/correct.

Problems can occur when there is a lack of clarity or consensus regarding the purpose of the assessment. Therefore, the purpose of the assessment will first be communicated to administrators, teachers, and parents well in advance of rollout (no later than Feb. 1 of Year 4) and after approval from the key stakeholders. This communication will allow greater understanding of the technical requirements of the assessment and the timeline for teacher trainings and fall entry testing. A critical aspect of this announcement will be explaining what the test is not to be used for (e.g., high stakes decisions, restricting entry to Kindergarten). These public announcements will be designed to build enthusiasm for the new TX-KEA system to increase participation in the assessment training and administration.

The teacher training will require three phases. Phase 1 of training will use a trainer-of-trainer approach in which research staff provide hands-on, in-depth training and administration practice during a

live 8 hour training to be offered at regional service centers across the state. These local TX-KEA trainers will include coaches, school psychologists, or other personnel with appropriate credentials to serve as experts for their school/district. Trainers travel costs for the one-day training will be covered by the grant. In addition to communication and announcements from TEA/CLI sent to all teachers and administrators, these local trainers will be responsible for: communicating the assessment purpose to teachers in their school/district, providing information on how to access required online training resources, and providing the first level of technical assistance for technology or administration questions.

Phase 2 of training includes free, online Kindergarten teacher training modules on administration and scoring of assessments that will require approximately 4 hours of online, distance learning that will include multiple video exemplars and expert commentary on the rationale for scoring observed responses. The online learning will include general topics, such as establishing a rapport with the child, minimizing burdens of the assessment environment and duration, appropriate words of encouragement (vs. coaching/feedback), and information on administration procedures for ELL (depending on availability of bilingual assessors) and children with special needs. The other sections of the online training will require about 20 min per subtest. All online training materials and courses will be available 24/7 and allow teachers to complete trainings on subtests over intervals of their choosing. Teachers will be given access to the online training no later than 5 weeks before the start of school to ensure sufficient completion time. Teachers will have to demonstrate a passing quiz score on administration procedures for each subtest to complete the training and be certified to administer the TX-KEA. Phase 3 will require an additional 2 hours of online training as well as group trainings facilitated by the TX-KEA trainers. The purpose of this stage is to guide teachers in using assessment data in appropriate ways to guide instruction and on how to communicate assessment results to parents. This phase will occur after data has been collected. Phase 3 trainings will include specific information on determining whether a child should receive in-depth diagnostic screening and how to initiate that process with parents and local specialists.

### **Approach for Developing the Reporting System**

In order to provide a seamless an experience as possible, the Texas Student Data System (TSDS, 2013) will serve as the starting point for the development of the reporting system. The system will be organized hierarchically within LEA organization (i.e., Districts, Schools, and Classrooms) so that the students' scores can be aggregated to the level of the user. For example, teachers will be able to view individual scores for each child or look at the classroom averages for relative strengths and weaknesses of the children as a group. Similarly, a superintendent will be able to view individual children's scores as well as classroom, school, and district averages within TSDS. Each level provides a different look to the data and a different opportunity for praise or intervention.

We will begin by creating several reports that mirror the reports available in the TSDS: individual student summary with scores on each domain in both languages and classroom/school/district summaries with student average scores on each domain. As described in the KEA Design section, additional reports will be created for different purposes: small-group instruction,

### **Ensuring and Maintaining the Integrity of the Assessment**

The plans laid out for the development of TX-KEA include careful attention to ensuring that a quality assessment is developed. Quality is ensured by an iterative design process that from its inception takes into account the needs all kindergarten students (e.g., those with disabilities and ELLs). Procedures outlined in the current proposal (e.g., Universal Design and Accommodations Committee, development of items with input from recognized experts in their respective fields, focus groups, and integration of TX-KEA with a data management system currently used statewide) will ensure that the TX-KEA is relevant, easy to administer in a reliable fashion, and valid. Finally, the CLI has a history of development of intuitive reporting systems that can inform teachers, and administrators as well as being used to direct instructional approaches. In total, TX-KEA has the potential to bring together the multitude of different approaches and assessments that are used to evaluate children's progress in kindergarten.

## Other Attachment File(s)

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\* Mandatory Other Attachment Filename:

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To add more "Other Attachment" attachments, please use the attachment buttons below.

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Texas Association of School Administrators

Dr. Susan Landry, Director  
Children's Learning Institute  
The University of Texas Health Science Center at Houston  
P.O. Box 20036  
Houston, TX 77225-0036

Dear Dr. Landry:

The Texas Association of School Administrators is pleased to support the Texas Education Agency's application for the U.S. Department of Education's Kindergarten Entry Assessment Competition, in partnership with The University of Texas Health Science Center at Houston's Children's Learning Institute.

Currently, Texas school districts have been in the practice of evaluating kindergarten readiness based on student scores on a variety of available and predominantly literacy-based screeners. While this practice has worked and allowed districts and school leaders to develop responsive strategies based on what the data indicates, the proposed approach in the grant, namely a focus on developing comprehensive kindergarten readiness across multiple domains, will provide schools with a needed complement to its existing approaches thereby opening up additional possibilities to improve student readiness and performance.

We are also pleased that the Texas Education Agency, in partnership with your organization, has developed a thoughtful, four-year work plan towards developing and ultimately implementing the assessment system. This will allow our organization, which represents thousands of school leaders from across Texas, to work closely with you on developing strategies to create opportunities to discuss the system's development in public forums, and work towards helping key stakeholders understand the purposes of the system and its potential usefulness as a preferred approach to measuring comprehensive kindergarten readiness.

We look forward to working together upon your successful receipt of this important grant opportunity.

Sincerely,

(b)(6)

Casey McCreary, Ed.D.

Assistant Executive Director

Texas Association of School Administrators



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Dr. Susan Landry, Director  
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The University of Texas Health Science Center at Houston  
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Houston, TX 77225-0036

Dear Dr. Landry:

The Texas Association of School Boards (TASB) is pleased to support the Texas Education Agency's application for the U.S. Department of Education's Kindergarten Entry Assessment Competition, in partnership with The University of Texas Health Science Center at Houston's Children's Learning Institute.

Texas school boards play a critical role in ensuring that schools provide children with exceptional educational opportunities. We understand that assessment, when appropriately utilized, provides teachers, administrators, and other key constituencies with real-time opportunities to adjust instruction and levels of support according to student need. Therefore, the strategies and work plan you have outlined in your application represent a new opportunity to rethink how we assess children upon kindergarten entry in order to ensure that we work effectively towards student success.

Over the next four-years, TASB is committed to helping build awareness and support for this project as we understand its importance for Texas' future. Some of the ways we see working together include helping to recruit school district support to participate in the assessment system's development as well as being an ongoing thought partner to help understand opportunities and challenges as they present themselves throughout the project's duration.

Thank you for your leadership in putting this important application together and we look forward to beginning to work together this Fall.

Sincerely,

Catherine Clark  
Associate Executive Director, Governance Services

DEPARTMENT OF APPLIED PSYCHOLOGY

June 23, 2013

Dr. Susan Landry  
Director  
Children's Learning Institute  
The University of Texas Health Science Center at Houston  
P.O. Box 20036  
Houston, TX 77225-0036  
Susan.Landry@uth.tmc.edu

Dear Dr. Landry:

Thank you for the invitation to participate in The University of Texas Health Science Center at Houston's application, in partnership with the Texas Education Agency, for the U.S. Department of Education's Kindergarten Entry Assessment Competition. I am particularly excited about working with your research and assessment team to further develop the social-emotional assessment component of the Kindergarten Entry Assessment System as my research has focused extensively on the integration of cognition and emotion in conceptualizing children's functioning at school entry. This has included studies that examine the interrelation of self-regulation (e.g., executive function, effortful control) with early math and literacy skills in Kindergarten. I think my expertise can be very helpful for this specific endeavor.

I understand that my specific activities as a consultant will be determined based on annual work plans that the Center will develop. These plans will be based on your needs for expertise at the time.

I look forward to the opportunity to work together.

Sincerely yours,

(b)(6)

Clancy Blair, PhD  
Professor, Department of Applied Psychology  
Steinhardt School of Culture, Education, and Human Development  
New York University 196 Mercer Street, 8th floor  
New York NY 10012

**MICHIGAN STATE**  
**UNIVERSITY**

June 25, 2013

Dr. Jason L. Anthony  
Children's Learning Institute  
University of Texas Health Science Center  
7000 Fannin, Suite 2377  
Houston, TX 77030



RE: Consultation for Texas Kindergarten Entry Assessment grant

Dear Jason:

Thank you for talking with me about serving as a consultant on your Texas Kindergarten Entry Assessment grant, in which you are partnering with Texas Education Agency (TEA) to develop a comprehensive school readiness assessment system to assess children at entry to kindergarten. I will serve as a statistical consultant to you and Dr. Jeff Williams. Having worked with you and Jeff on previous assessment projects, I know that you will both value my input and use it to shape your analytic plans. Your current plans to use scale an initial item pool on a large, heterogeneous sample, test for differential item functioning, and select optimally performing items to create brief tests fit well with my expertise in measurement and early childhood assessment. I am trained as a quantitative psychologist with a focus on measurement and longitudinal methods. I use contemporary measurement methods to develop assessments for early childhood, including assessments of narrative skills, phonological awareness, behavioral self-regulation, and letter knowledge. The development of these assessments involved many of the same statistical approaches that you are proposing in this grant. I welcome the opportunity to work with you again.

Sincerely,

(b)(6)

Ryan Bowles

College of  
Social Science  
  
Department of Human  
Development and Family Studies

Ryan P. Bowles  
3C Human Ecology  
552 W. Circle Drive  
Michigan State University  
East Lansing, MI 48824-1030

bowlesr@msu.edu  
517-432-2264  
Fax: 517-432-2953



Life Span Institute

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*Juniper Gardens Children's Project*

*mail: [carta@ku.edu](mailto:carta@ku.edu)*

July 3, 2013

Dr. Susan Landry  
Director  
Children's Learning Institute  
The University of Texas Health Science Center at Houston  
P.O. Box 20036  
Houston, TX 77225-0036  
[Susan.Landry@uth.tmc.edu](mailto:Susan.Landry@uth.tmc.edu)

Dear Dr. Landry:

Thank you for the invitation to participate in The University of Texas Health Science Center at Houston's application, in partnership with the Texas Education Agency, for the U.S. Department of Education's Kindergarten Entry Assessment Competition. I am excited about working with you and your team to develop this assessment system so that it can be effective with children with special learning needs. As you know, I have spent many years at Juniper Gardens Children's Project at the University of Kansas developing assessments for young children. My leadership role with the IES-funded Center for Response to Intervention in Early Childhood has allowed me to work with many researchers and teachers across the nation to better understand what is important in understanding children's readiness for kindergarten. In addition, I am currently serving as a member of Commissioner on Recommended Practices for the Division of Early Childhood within the Council on Exceptional Children. This group is identifying assessment practices for young children with disabilities backed by the strongest research evidence.

I understand that my specific activities as a consultant will be determined based on annual work plans that the Center will develop. These plans will be based on your needs for expertise at the time.

I look forward to the opportunity to work together.

Sincerely,

(b)(6)

Senior Scientist, Institute for Life-Span Studies  
Professor, Early Childhood Special Education



UNIVERSITY of  
DENVER

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MORGRIDGE COLLEGE OF EDUCATION

Oct 23, 2012

Dr. Susan Landry  
Director  
Children's Learning Institute  
The University of Texas Health Science Center at Houston  
P.O. Box 20036  
Houston, TX 77225-0036  
Susan.Landry@uth.tmc.edu

Dear Dr. Landry:

I am pleased to accept your invitation to participate in The University of Texas Health Science Center at Houston's application, in partnership with the Texas Education Agency, for the U.S. Department of Education's Kindergarten Entry Assessment Competition.

I hope that the research that my colleagues and I have been conducting regarding early childhood mathematics in early childhood will be helpful in guiding this project. I am now the Kennedy Endowed Chair in Early Childhood Learning and Professor at the University of Denver, and previously was a SUNY Distinguished Professor in Learning and Instruction at the University at Buffalo. I have worked in and in mathematics education, educational technology, and early childhood education, and have published in 120 refereed research studies, 12 books, 65 chapters, with 250 additional publications in these areas.

I have also served on numerous national and state panels and committees, funded research projects, and editorial boards aimed at designing and implementing effective cutting-edge mathematics education and curricula through the use of research-based results related to evidence-driven mathematics learning and teaching. We have designed and tested mathematics curricula and computer environments following our Curriculum Research Framework (CRF). A substantial effort was spent on developing the Building Blocks curriculum and especially on developing instruments to measure both outcomes and classroom practices, all of

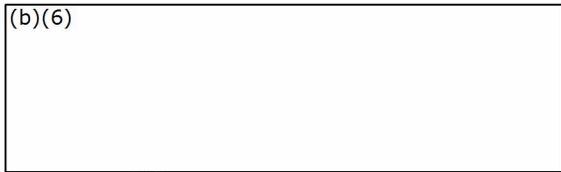
which may be relevant to your work. A recent NSF-funded project on assessment of early mathematics competencies may be particularly relevant. Two recent books on learning trajectories for young children (published 2009 with Taylor & Francis/Routledge) may also be helpful.

Other projects we have worked on may also be relevant to your work. I have served as a member of President Bush's National Math Advisory Panel, convened to advise the administration on the best use of scientifically based research to advance the teaching and learning of mathematics, and coauthor of the Panel's report. I was also a member of the National Research Council's Committee on Early Mathematics and co-author of their report. Finally, I served on the Common Core committee of the National Governor's Association and the Council of Chief State School Officers, helping to write national academic standards.

I understand that my specific activities as a consultant will be determined based on annual work plans that the Center will develop. These plans will be based on your needs for expertise at the time.

Sincerely,

(b)(6)

A rectangular box with a black border, containing the text "(b)(6)" in the top-left corner. The rest of the box is empty, indicating that the signature has been redacted.

Douglas H. Clements, Ph.D., PI  
Kennedy Endowed Chair in Early Childhood Learning



**CURRY SCHOOL OF EDUCATION**

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June 25, 2012

**Department of Curriculum,  
Instruction, and Special Education**

Drs. Susan Landry, Jason Anthony and Tricia Zucker  
Children’s Learning Institute  
The University of Texas Health Science Center at Houston  
P.O. Box 20036  
Houston, TX 77225-0036  
Susan.Landry@uth.tmc.edu

Dear Dr. Landry and colleagues:

Thank you for the invitation to participate in The University of Texas Health Science Center at Houston’s Children’s Learning Institute (CLI) and the Texas Education Agency’s (TEA) collaborative application for the U.S. Department of Education’s Kindergarten Entry Assessment Competition. As co-creator of the Spanish versions of Virginia’s statewide universal literacy screening assessment – the Phonological Awareness Literacy Screening (PALS) – I am pleased to offer assistance to TEA and CLI in their plans to create a linguistically and culturally appropriate measure for all students in their state. PALS is the assessment of the Virginia Early Intervention Reading Initiative. We recently received funding from the National Center for Education Research to develop and validate a Spanish version of the widely-used PALS measure (PALS español) to ensure students’ literacy skills can be assessed in their native language.

My research and expertise focus on bilingual literacy assessment, curriculum, and instruction as integrated components within systematic intervention approaches. Our work with the PALS español literacy screening includes research and large-scale professional development and technical assistance to ensure these data are appropriately utilized by teachers and administrators.

I understand that my specific activities as a consultant will be determined based on annual work plans that the Center will develop. These plans will be based on your needs for expertise at the time.

I look forward to the opportunity to work together as you seek to give the thousands of Spanish-speaking students in your state greater access to appropriate literacy screening and more effective instruction.

Sincerely,

(b)(6)

Karen L. Ford, Ph.D.

UNIVERSITY

June 25, 2012

Drs. Susan Landry, Jason Anthony and Tricia Zucker  
Children's Learning Institute  
The University of Texas Health Science Center at Houston  
P.O. Box 20036  
Houston, TX 77225-0036  
Susan.Landry@uth.tmc.edu

Dear Dr. Landry and colleagues:

Thank you for the invitation to participate in The University of Texas Health Science Center at Houston's Children's Learning Institute (CLI) and the Texas Education Agency's collaborative application for the U.S. Department of Education's Kindergarten Entry Assessment Competition. I am happy to offer assistance to TEA and CLI in their endeavor to improve kindergarten school readiness assessment and can offer expertise in all areas of school readiness especially assessment and curriculum in the domain of children's science learning which has been one of my main areas of research focus for the past 7 years.

With respect to young children's science learning, I am the Principal Investigator (PI) on multiple Institute of Education Sciences (IES) funded measurement grants to develop direct assessments of young children's science ability (*Preschool Science Assessment: PSA*), including two ongoing projects which are computer adaptive, administered on a touch-screen laptop, one for English speaking children (*Lens on Science*) and one young Latino children (*Enfoque En Ciencia*). I am the author of a chapter titled "Assessment in Early Childhood Science Education," in the forthcoming Springer book titled, "Research in Early Childhood Science Education." I was also the Co-PI on the IES funded Early Childhood Hands-on Science (ECHOS) curriculum development project in partnership with the Miami Museum of Science (2006 - 2009), and am currently the Co-PI on an IES funded follow-up RCT efficacy trial of ECHOS as well as Co-PI on an NSF funded early childhood Science and Engineering curriculum development project (Readiness through Integrative Science and Engineering: RISE). Finally, I am the PI on an Administration for Children and Families (ACF) funded project to study inquiry skills in young children as these relate to early science (Learning through Inquiry: Examining the Relationship between Child-Generated Questions, Teacher Practices, and School Readiness in Head Start Classrooms).

In regards to other domains of school readiness assessments, I can offer useful perspectives from my years of service to the Florida State Office of Early Learning. I served on 4 statewide taskforces creating Florida's 1) age three through age five school readiness standards; 2) birth through age three early learning standards; 3) integrating the birth through age three and three to age five standards into one continuous set of birth to age five standards; and 4) integrating the Voluntary PreK (VPK) standards for four year olds into the birth to age five standards. For all 4 statewide taskforces I chaired the "Approaches to Learning" readiness subgroup as well as contributed to the work of the other 4 subgroups (Language; Cognition and General Knowledge; Social Emotional; Physical Development and Health). From 2010 - 2012 I served as one of three consultants for the

Florida State Office of Early Learning to develop a comprehensive statewide early childhood plan that addressed kindergarten readiness screening as a key issue. This year, I am partnering with the American Institutes of Research (AIR) to evaluate Florida's birth to five school readiness assessments; these experiences will also allow me to provide useful information to my colleagues in Texas as they develop a new kindergarten school readiness assessment.

To summarize, my research and expertise are in the all areas of school readiness and kindergarten entry assessment as well early childhood assessment and particularly assessment and instruction in STEM. I understand that my specific activities as a consultant will be determined based on annual work plans that the Center will develop. These plans will be based on your needs for expertise at the time.

I am very excited about your partnership and planned work in Texas and I look forward to the opportunity to work together as you address similar goals of improving the readiness of young children for school in your state.

Sincerely,

(b)(6)

Professor of Psychology & Pediatrics



*Valley Speech, Language & Learning Center*

535 Stovall Road Brownsville, Texas 78520  
Telephone (956) 504-2200 Fax (956) 504-2231  
valleyspeechllc@att.net

Dr. Jason L. Anthony  
Children's Learning Institute  
University of Texas Health Science Center  
7000 Fannin, Suite 2377  
Houston, TX 77030

RE: Letter of support for US DOE grant to Development of a Texas Kindergarten Entry Assessment

Dear Jason:

I would be happy to serve as a consultant on the project in which you are working with Texas Education Agency to develop a statewide Kindergarten Entry Assessment. I understand that my expertise in bilingual assessment, along with that of other content experts, teachers, and TEA, will be used to inform the item content and methods of assessment of multiple domains of school readiness. I also understand that as a consultant, I would be a member of a panel of experts in bilingual assessment who review initial test items for age appropriateness and lack of bias against gender, ethnicity, SES, and dialect. I would also participate in conference calls to discuss my opinions of the initial test items and make recommendations.

Best of luck with your proposal!

Sincerely,

(b)(6)

Elsa Cárdenas-Hagan, Ed.D., C.C.C./SLP, C.A.L.T.  
President  
Valley Speech Language and Learning Center



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Department of Curriculum,
Instruction, and Special Education

June 24, 2013

Drs. Susan Landry, Jason Anthony and Tricia Zucker
Children's Learning Institute
The University of Texas Health Science Center at Houston
P.O. Box 20036
Houston, TX 77225-0036
Susan.Landry@uth.tmc.edu

Dear Dr. Landry and colleagues:

Thank you for the invitation to participate in The University of Texas Health Science Center at Houston's Children's Learning Institute (CLI) and the Texas Education Agency's collaborative application for the U.S. Department of Education's Kindergarten Entry Assessment Competition. As the primary author of the Virginia's statewide universal literacy screening assessment that has been in place since 1998, I am happy to share what I've learned with TEA and CLI in this endeavor. PALS (Phonological Awareness Literacy Screening) is the state-provided assessment for Virginia's legislated Early Intervention Reading Initiative. Although this is a voluntary initiative, 99% of all the school divisions in Virginia choose to participate. We screen approximately 90% of our total statewide enrollment for Kindergarten and nearly 90% of the statewide enrollment for the first grade. Since 1998, we have also observed a steady decline in the number of at-risk children identified at kindergarten entry, which, although cannot be attributed exclusively to PALS, does suggests that statewide initiatives of this nature may contribute to increases in student achievement .

My research and expertise focuses on literacy assessment, curriculum and instruction as integrated components within systematic intervention approaches. Our work with the PALS literacy screening includes research as well as large-scale professional development and technical assistance to local school divisions to ensure these data are appropriately utilized by teachers and administrators.

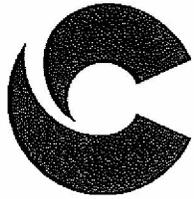
I understand that my specific activities as a consultant will be determined based on the annual work plans that the Center will develop, and that these plans will be based on your needs for expertise at the time.

I look forward working with you as you strive toward similar objectives to implement sound assessment and meaningful use of student performance data across your state.

Sincerely,

(b)(6)

Marcia Invernizzi, Ph.D.
Henderson Professor of Reading Education, and
Director, McGuffey Reading Center
Curry School of Education
mai@virginia.edu
434-924-0844



# Cole Pediatric Therapy

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June 26, 2013

Dr. Susan Landry  
Director  
Children's Learning Institute  
The University of Texas Health Science Center at Houston  
P.O. Box 20036  
Houston, TX 77225-0036  
Susan.Landry@uth.tmc.edu

Dear Dr. Landry:

I am excited to have the potential to participate in UT-Health's application, in partnership with the Texas Education Agency, for the U.S. Department of Education's application to develop a Kindergarten Entry Assessment. I feel confident that my training and employment as a pediatric physical therapist will allow us to develop a valid and reliable assessment of children's gross and fine motor skills for use during the kindergarten year. The goal of helping teachers to adequately assess the motor skills of young children at school entry has the potential to identify children who would benefit from a more comprehensive assessment of motor skills. I understand that my specific activities as a consultant will be determined based on annual work plans and that I will primarily be responsible for helping to develop items and scoring procedures for a brief evaluation of gross and fine motor skills of children enrolled in Kindergarten.

Thank you for providing me with this exciting opportunity.

Sincerely,

(b)(6)

Indiana Joseph, PT, DPT

Doctor of Physical Therapy

11700 Louetta Rd.  
Houston, TX 77070  
281.655.8114

16835 Deer Creek Dr. #120  
Spring, TX 77379  
281.379.4373

6701 Pinemont, #200  
Houston, TX 77092  
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Conroe, TX 77304  
936.441.1525

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Humble, TX 77338  
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COMMUNICATION SCIENCES & DISORDERS  
THE UNIVERSITY OF TEXAS AT AUSTIN

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25 June 2013

Dr. Jason L. Anthony  
Children's Learning Institute  
University of Texas Health Science Center  
7000 Fannin, Suite 2377  
Houston, TX 77030

RE: Letter of support for Development of Kindergarten Entry Assessment for Texas

Dear Jason:

I'm writing to confirm my interest in serving as a consultant on the project in which are collaborating with Texas Education Agency for develop a Texas Kindergarten Entry Assessment. Your plans to develop Kindergarten Entry Assessment for Texas is timely and very much in line with my own research and expertise in bilingual assessment. Also, you have gathered together an impressive team of esteemed colleagues in early language, emergent literacy, early math and science, social and emotional health, bilingualism, biliteracy, and research design and statistics. As such, I know my contributions will be thoughtfully integrated into the development of what will become an outstanding assessment tool. Your plans to make the TX-KEA computer administered and capable of immediate reporting of children's performances will greatly advance the fields' use of results from school readiness assessments.

I understand that as a consultant, I would be a member of a panel of experts in bilingual assessment who review initial test items for age appropriateness and lack of bias against gender, ethnicity, SES, and dialect. I would also participate in conference calls to discuss my opinions of the initial test items and make recommendations.

I look forward to working with you again should your proposal be funded.

Sincerely,

(b)(6)

A rectangular box with a black border, used to redact the signature of Elizabeth Peña. The text "(b)(6)" is written in the top left corner of the box.

Elizabeth Peña  
Professor

July 2, 2013

Shirley Beaulieu  
CFO/Associate Commissioner  
Texas Education Agency  
1701 North Congress Avenue  
Austin, Texas 78701

RE: TEA – Enhanced Assessment Grants Program  
Proposal Entitled “Texas Kindergarten Entry Assessment (T-KEA) System”  
UTSHCH PI: Dr. Susan Landry

Dear Ms. Beaulieu:

Enclosed are the budget and budget narrative for the TEA – Enhanced Assessment Grants Program proposal entitled “Texas Kindergarten Entry Assessment (T-KEA) System” from The University of Texas Health Science Center at Houston (UTHSCH). The sum of \$3,859,132.00, including 15% indirect cost, is requested for the period December 1, 2013 through August 31, 2017.

If you have any questions or need additional information, please contact Kathy Bradley at (713) 500-3073, [Kathryn.A.Bradley@uth.tmc.edu](mailto:Kathryn.A.Bradley@uth.tmc.edu), or the Office of Sponsored Projects main line at (713) 500-3999, [osp@uth.tmc.edu](mailto:osp@uth.tmc.edu)

Sincerely,

(b)(6)

Karen Niemeier  
Director, Contracts  
Office of Sponsored Projects

Enclosures

# Curriculum Vitae

## Susan H. Landry, Ph.D.

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### EDUCATION AND TRAINING

9/1965 – 6/1969	Wagner College Staten Island, New York	B.A. Music Education
9/1971 – 6/1974	University of Maryland College Park, Maryland	M.A. Education
9/1975 – 6/1977	University of Texas Graduate School of Biomedical Sciences Houston, Texas	M.S. Communication Disorders
9/1980 – 6/1984	University of Houston Houston, Texas	Ph.D. Applied Developmental Psychology
9/1977 – 12/1985	Research Specialist Texas Research Institute of Mental Sciences Houston, Texas	
1/1984 – 12/1986	Clinical Supervision: Dr. Jack Fletcher Texas Research Institute of Mental Sciences and the University of Houston Houston, Texas	
1/1985 – 12/1986	Clinical Supervision: Dr. Edward McLaughlin Department of Psychiatry University of Texas Medical School Houston, Texas	

### RESEARCH AND PROFESSIONAL EXPERIENCE

1977 – 79	<i>Texas Research Institute of Mental Sciences: Language Specialist- Coordinator, Speech and language Services, Developmental Clinics, Houston, TX.</i>
1979 – 84	<i>Research Specialist II, Texas Research Institute of Mental Sciences Developmental Neuropsychology Research Section, Houston, TX.</i>
1985 – 86	<i>Assistant Professor, Department of Psychiatry and Behavioral Sciences, The University of Texas Medical School at Houston, Houston, TX.</i>
1986 – 87	<i>Research Assistant Professor, Departments of Pediatrics &amp; Preventive Medicine and Community Health, Division of Sociomedical Sciences, The University of Texas Medical Branch at Galveston, Galveston, TX.</i>
1987 – 90	<i>Assistant Professor, Department of Pediatrics, Division of Perinatal Medicine, The University of Texas Medical Branch at Galveston, Galveston, TX.</i>
1990 – 96	<i>Associate Professor, Department of Pediatrics, The University of Texas Medical School at Houston, Houston, TX.</i>
1996 – Present	<i>Professor, Department of Pediatrics, The University of Texas Health Science Center at Houston, Houston, TX.</i>
1999 – Present	<i>Michael Matthew Knight Professor of Pediatrics, The University of Texas Medical School at Houston, Houston, TX.</i>

- 1999 – Present *Division Chief*, Division of Developmental Pediatrics, Department of Pediatrics, The University of Texas Health Science Center at Houston, Houston, TX.
- 2006 – Present *Director*, Children’s Learning Institute, The University of Texas Health Science Center at Houston, Houston, TX.
- 2008 – Present *Albert and Margaret Alkek Endowed Chair in Early Childhood*, The University of Texas Medical School at Houston, Houston, TX.

## **SELECTED PUBLICATIONS**

### *FROM A LIST OF OVER 100*

- Fletcher, J.M., Brookshire, B.L., Landry, S.H., Bohan, J., Davidson, K.C., Francis, D.J., Levin, H.S., Brandt, M., and Morris, R.: Attentional skills and executive functions in children with early hydrocephalus. **Developmental Neuropsychology**, 12: 53-76, 1996.
- Anderson, A., Landry, S.H., Smith, S.E., Wildin, S., Swank, P.R., Miller, C., Denson, S., Butler, I.: The neurological outcome at one year of preterm very low birth weight infants. **Journal of Child Neurology**, 11: 1-5, 1996.
- Smith, K.E., Landry, S.H., Swank, P.R., Baldwin, C.D., Denson, S.E., and Wildin, S.: Maternal support for the development of cognitive and communication skills in preterm infants from six to twelve months of age. **Journal of Child Psychiatry and Psychology**, 37 (7): 855-864, 1996.
- Landry, S.H., Denson, S.E., and Swank, P.R., Effects of medical risk and socioeconomic status on the rate of change in cognitive and social development of low birthweight infants. **Journal of Clinical and Experimental Neuropsychology**, 19 (3), 261-274, 1997.
- Landry, S.H., Smith, K.E., Miller-Loncar, C.L., & Swank, P.R. Predicting cognitive-linguistic and social growth curves from early maternal behaviors in children at varying degrees of biologic risk. **Developmental Psychology**, 33 (6), 1-14, 1997.
- Landry, S.H., Miller, C., Swank, P.R., The effect of mothers' teaching interventions on mastery motivation for children with Down Syndrome. **Early Education and Development** (Special Issue), 9 (4), 375-392, 1998.
- Smith, K.E., Landry, S.H., Swank, P.R.: Does the content of mothers' verbal stimulation explain differences in children's development of verbal and nonverbal cognitive skills? **Journal of School Psychology**, 38 (1), 27-49, 2000.
- Smith, K.E., Landry, S.H., and Swank, P.R.: The influence of early patterns of positive parenting on children's preschool outcomes. **Early Education and Development**, 11 (2), 147-169, 2000.
- Landry, S.H., Smith, K.E., Swank, P.R., Loncar, C.L.: Early maternal and child influences on children's later independent cognitive and social functioning. **Child Development**, 71 (2), 358-375, 2000.
- Landry, Susan H., Smith, K.E., Swank, P.R., Assel, M.A., Vellet, N.S.: Does early responsive parenting have a special importance for children’s development or is consistency across early childhood necessary? **Developmental Psychology**, 37 (3), 387-403, 2001
- Landry, S.H., Loncar, C.L., Smith, K.E., Swank, P.R.: The role of early parenting in children’s development of executive processes. **Developmental Neuropsychology**, 21, (1) 15-41, 2002.

- Landry, Susan H., Smith, K., Swank, P.: Environmental Effects on Language Development in Normal and High-Risk Child Populations. **Seminars Pediatric Neurology**, 9, (3). 191-199, 2002.
- Landry, S.H., Smith, K.E., Swank, P.R. The Importance of Parenting During Early Childhood for School Age Development. **Developmental Neuropsychology: Special Issue 24**, (2&3), 559-590, 2003
- Landry, Susan H., Introduction to the Special Issue on the Biological and Social Determinants of Child Development. **Developmental Neuropsychology**, Special Issue 24, (2&3), 519-521, 2003.
- Assel, M., Landry, S., Swank, P., Smith, K., Steelman, L. Precursors to mathematical skills: Examining the roles of visual spatial skills, executive processes, and parenting factors. **Applied Developmental Science**, 7, 27-38, 2003
- Landry, Susan H., Swank, Paul R., Smith, Karen E., Gunnewig, Susan B. Enhancing Cognitive Readiness for Pre-School Children: Bringing a Professional Development Model to Scale. **Journal of Learning Disabilities**, 39 (4), 306-324, 2006.
- Landry, Susan H., Smith, Karen E, Swank, Paul. Responsive Parenting: Establishing Early Foundations for Social, Communication, and Independent Problem Solving Skills. **Developmental Psychology**, 42 (4), 627-642, 2006.
- Dieterich, S.E., Assel, M.A., Swank, P., Smith, K.E., & Landry, S.H. The Impact of Early Maternal Verbal Scaffolding and Child Language Abilities on Later Decoding and Reading Comprehension Skills. **Journal of School Psychology**. 43(6), 481-494, 2006.
- Hebert-Myers, H., Guttentag, C., Swank P.R., Smith K. E., Landry S. H., The Importance of Language, Social, and Behavioral Skills Across Early and Later Childhood as Predictors of Social Competence with Peers. **Applied Developmental Science**. 10(4), 174-187, 2006.
- Smith, K., Landry, S., Swank, P., The role of early of early maternal responsiveness in supporting school-aged cognitive development for children who vary in birth status. **Pediatrics**. 117(5):1608-17, 2006 May.
- Assel, M.A., Landry, S. H., Swank, P. R., & Gunnewig, S. B., An Evaluation of Curriculum, Setting, and Mentoring on the Performance of Children Enrolled in Pre-kindergarten. **Reading and Writing: An Interdisciplinary Journal**. 20(5), 463-494, 2007 July.
- Landry, S.H., Smith, K.E., Swank, P.R., Guttentag, C., A Responsive Parenting Intervention: The Optimal Timing across Early Childhood for Impacting Maternal Behaviors and Child Outcomes. **Developmental Psychology**. 44(5): 1335-1353, 2008.
- Taylor, H.B., Anthony, J., Aghara, R., Smith, K.E., & Landry, S.H. The interaction of early maternal responsiveness and children's cognitive abilities on later decoding and reading comprehension skills. **Early Education and Development**. 19(1): 188-207, 2008.
- Landry, S.H., Leveling the Early Childhood Playing Field for Low Income Children. **Educational Leadership**. 2009.
- Landry, S.H., Anthony, J., Swank, P.R., Monsegue-Bailey, P., Effectiveness of Comprehensive Professional Development for Teachers of At-Risk Preschoolers. **Journal of Educational Psychology** 101(2): 448-465, 2009
- Baggett, K.M., Davis, B.D., Feil, E.G., Sheeber, L.L., Landry, S.H., Carta, J.J., Leve, C. Technologies for Expanding the Reach of Evidence-Based Interventions: Preliminary Results for Promoting Social-Emotional Development in Early Childhood. **Topics in Early Childhood Special Education**. 29(4) 226-238, 2010.

- Silva, K. M., Spinrad, T. L., Eisenberg, N., Sulik, M. J., Valiente, C., Huerta, S., Edward, A., Eggum, N. D., Kupfer, A., Lonigan, C. J., Phillips, B. M., Wilson, S. B., Clancy-Menchetti, J., Landry, S. H., Swank, P., Assel, M., & Taylor, H. Relations of children's effortful control and teacher-child relationship quality to school attitudes in a low-income sample. *Early Education and Development*. 22(3), 434-460, 2011
- Barnes, M., Stubbs, A., Raghobar, K.P., Alba Agostino, A., Taylor, H., Landry, S., Fletcher, J.M., Smith-Chant, B., Mathematical Skills in 3- and 5-Year-Olds with Spina Bifida and Their Typically Developing Peers: A Longitudinal Approach, **Journal of the International Neuropsychological Society** 17, 1-14, 2011.
- Anthony, J. L., Williams, J. M., Duran, L., Gillam, S., Liang, L., Aghara, R., Swank, P., Assel, M., & Landry, S. Dimensionality and Development of Spanish Phonological Awareness. **Journal of Educational Psychology**. 103, 857-876, 2011
- Landry, S., Swank, P. R., Anthony, J., Assel, M., An experimental study evaluating professional development activities within a state funded pre-kindergarten program, **Reading and Writing**. 24 (8), 971-1010, 2011.
- Landry, S. H., Smith, K. E., Swank, Paul R., Zucker, T., Crawford, A. D., Solari, E. F. The effects of a responsive parenting intervention on parent-child interactions during shared book reading. **Developmental Psychology**. 48(4), 366-392, July 2012
- Zucker, T. A., Solari, E. J., Landry, S. H., & Swank, P. R. (2013). Effects of a brief tiered language intervention for prekindergartners at risk. **Early Education & Development**, 24(3), 366-392. doi: 10.1080/10409289.2012.664763
- Crawford, A., Zucker, T. A., Williams, J., Bhavsar, V., & Landry, S. H. (in press). Coaching Models: Initial Validation of the Pre-Kindergarten Classroom Observational Tool. **School Psychology Quarterly**.
- Landry, S. H., Zucker, T. A., Taylor, H. B., Swank, P. R., Williams, J. M., Assel, M. A., Crawford, A., Huang, W., Clancy-Menchetti, J., et. al., (in press). Enhancing Early Childcare Quality and Learning for Toddlers at Risk: Responsive Early Childhood Program. **Developmental Psychology**.

### **SELECTED MEASUREMENT TOOLS AND CURRICULUM MATERIALS**

- Crawford, A.D., Waxley, T.L., Landry, S.H. (2012). Instructional Leadership: Supporting School-Wide Improvement. Web-based course. Licensed by Teachscape.
- Crawford, A., Zucker, T. A., Reed, B., Aston, L., Tuynman, B., Monseque-Bailey, P., Morgan, L., Waxley, T., Landry, S.H., & Solari, E. J. (2012). *Classroom Observation Tool*. Unpublished instrument, Department of Pediatrics, University of Texas Health Science Center at Houston, Houston, Texas.
- Zucker, T. A., Solari, E. J., Cabell, S. Q. & Landry, S.H. (2010). Developing Talkers: Pre-K curricular supplement to promote oral language. Houston, TX: University of Texas Health Science Center at Houston.
- Solari, E. J., Zucker, T. A., Cruz, A. Q. & Landry, S.H. (2010). Hablemos Juntos: Suplemento curricular de pre-k para promover el lenguaje oral. Houston, TX: University of Texas Health Science Center at Houston.
- Crawford, A., Reed, B., Aston, L., Landry, S.H., (2009). *Classroom Observation Tool*. Houston, Texas: Children's Learning Institute.
- Landry, S.H., Crawford, A., Solari, E., (2009). *Bilingual Teacher Behavior Ratings Scale*. Houston, Texas: Children's Learning Institute.

- Crawford, A., Landry, S.H. (2007). *Child Behavior Sweeps- Measuring Child Engagement in Early Childhood Classrooms*. Houston, Texas: Children's Learning Institute.
- Landry, S.H., Crawford, A., Reed, B. (2005) *K-1 Teacher Behavior Ratings Scales*. Houston, Texas: Children's Learning Institute.
- Crawford, A., Reed, B., Landry, S.H., (2005) *K-1 Teacher Behavior Ratings Scales Technical Manual*. Houston, Texas: Children's Learning Institute.
- Landry, S.H., Assel, M.A., Gunnewig, S.B., Swank, P.R. (2004). *C – PALLS: CIRCLE – Phonological Awareness, Language, & Literacy System*. Houston, Texas: The CIRCLE Group
- Landry, S.H., Assel, M.A., Gunnewig, S.B., Swank, P.R. (2004). *C – PALLS: CIRCLE – Phonological Awareness, Language, & Literacy System, Spanish Edition*. Houston, Texas: The CIRCLE Group
- Landry, S.H., Smith, K. E., Crawford, A. (2003). *Parent- Child Shared Book Reading Observation Scoring System*. Houston, TX: Children's Learning Institute.
- Crawford, A., Landry, S.H. (2003). *Teacher Behavior Sweeps- Capturing Instructional Focus and Responsive Teaching in Early Childhood Classrooms*. Houston, TX: Children's Learning Institute.
- Landry, S.H., Crawford, A., Gunnewig, S., Swank, P. (2001). *Pre-K Teacher Behavior Ratings Scale- TBRS*. Houston, Texas: Children's Learning Institute.
- Crawford, A., Landry, S.H. (2001). *Pre-K Teacher Behavior Ratings Scale Technical Manual*. Houston, Texas: Children's Learning Institute.

**Jason L. Anthony**  
Curriculum Vitae

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**Education**

2001 Ph.D. Florida State University, Clinical Psychology  
1999 Ed.S. Florida State University, School Psychology  
1996 M.S. Florida State University, Clinical Psychology  
1993 B.A. Wayne State University, Liberal Arts & Psychology

**Professional Experience**

2008-present **Associate Professor**, Children's Learning Institute, Department of Pediatrics, University of Texas Health Science Center, Houston, TX  
2005-2008 **Assistant Professor**, Children's Learning Institute, Department of Pediatrics, University of Texas Health Science Center, Houston, TX  
2001-2005 **Assistant Professor**, Texas Institute for Measurement Evaluation and Statistics, Department of Psychology, University of Houston, Houston, TX  
2000-2001 **Resident**, Department of Psychiatry, University of Washington, Seattle, WA  
1998-2000 **Fellow**, Interdisciplinary training in developmental disabilities, Florida State University, Tallahassee, FL  
1997-1998 **Intern**, school psychology, Dozier School for Boys, Marianna, FL  
1996-1997 **Intern**, school psychology, FSU Multidisciplinary Center, Tallahassee, FL

**Grants**

*Principal Investigator.* Development of the School Readiness Curriculum Based Measurement System. U.S. Department of Education, Institute of Education Sciences, (\$1.7M; 40-50% effort; 2010-2014).

*Principal Investigator & Director of Training.* Interventions and Professional Development Models: Language & Literacy Pre-kindergarten to Grade 12. U.S. Department of Education, Institute of Education Sciences, Special Education Postdoctoral Training Fellowship. (\$680,565; 10% effort; 2013-2016).

*Principal Investigator.* Evaluation of the efficacy of Earobics Step 1 in ESL children and low SES minority children. U.S. Department of Education, Institute of Education Sciences, Cognition and Student Learning Research Grant Program (\$2.7M; 30% effort; 2008-2013).

*Principal Investigator.* Promoting school readiness and literacy rich home environments through the Texas Early Education Model and Raising a Reader. W.K. Kellogg Foundation, Youth and Education program (\$1.7M; 30% effort; 2006-2011).

*Co-Investigator.* Texas Prekindergarten Limited English Proficiency program. Evaluation contract awarded by Texas Education Agency (Emily Solari, PI; \$3M; 5% effort; 2008-2010).

*Co-Investigator.* Texas Early Education Model Scale-up and Preschool Certification Project. Texas Education Agency. (Susan Landry, PI; \$15M, 10% effort; 2005-2010).

*Principal Investigator.* Evaluation of Safe Boundaries. Evaluation contract with Children's Assessment Center Foundation. (\$12,454; 2008-2011).

*Principal Investigator.* Texas Prekindergarten Limited English Proficiency program. Evaluation contract awarded by Texas Education Agency (\$50K; 2006-2007).

- Co-Investigator.* Evaluation of Pre-Kindergarten Curricula in Head Start and Public School Settings. National Institute of Child Health and Human Development (NICHD). (Susan Landry, PI; \$5M; 2002-2007).
- Co-Investigator.* Scaling Up a Language and Literacy Development Program at the Pre-kindergarten Level. Interagency Education Research Initiative supported by US Department of Education's Office of Educational Research and Improvement (OERI), the National Institute of Child Health and Human Development (NICHD), and the National Science Foundation (NSF). (Susan Landry, PI; \$5.9M; 2002-2007).
- Co-Investigator Advisor.* Texas Early Education Model. Texas Education Agency. (Susan Landry, PI; \$10M; 2003-2005).
- Principal Investigator.* School Readiness in Head Start children. Contracted program evaluation from Gulf Coast Community Services Association Head Start (August 1, 2002 – August 31, 2004; \$525K contract).

### **Publications – Peer-reviewed manuscripts**

- Anthony, J. L., Williams, J. M., Zhang, Z., Landry, S. H., Dunkelberger, M. J. (in press). Evaluation of Raising a Reader and supplemental parent training in shared reading. *Early Education and Development*.
- Mellard, D. F., & Anthony, J. L., & Woods, K (2012). Understanding oral reading fluency among adults with low literacy: Dominance analysis of contributing component skills. *Reading and Writing: An Interdisciplinary Journal*, 25, 1345-1364.
- Phillips, B., Piasta, S., Anthony, J. L., & Lonigan, C. J. (2012). IRTs of ABCs. *Journal of School Psychology*, 50, 461-481.
- Williams, J. M., Landry, S. H., Anthony, J. L., & Swank, P. R.. (2012). An empirically based statewide system for identifying quality pre-kindergarten programs. *Education Policy Analysis Archives*, 20, 1-33.
- Anthony, J. L., Williams, J. M., Duran, L., Gillam, S., Liang, L., Aghara, R., Swank, P., Assel, M., & Landry, S. (2011). Spanish phonological awareness: Dimensionality and sequence of development during the preschool and kindergarten years. *Journal of Educational Psychology*, 103, 857-876.
- Anthony, J. L., Greenblatt Aghara, R., Dunkelberger, M. J., Anthony, T. I., Williams, J. M., & Zhang, Z., (2011). What factors place children with speech sound disorders at risk for dyslexia? *American Journal of Speech Language Pathology*, 20, 146-160.
- Anthony, J. L., Aghara, R. G., Solari, E. J., Dunkelberger, M. J., Williams, J. M., & Liang, L. (2011). Quantifying phonological representation abilities in Spanish speaking preschool children. *Applied Psycholinguistics*, 32, 19-49.
- Landry, S., Swank, P., Anthony, J. L., & Assel, M. (2011). An Experimental Study Evaluating Professional Development Activities within a State Funded Pre-Kindergarten Program. *Reading and Writing: An Interdisciplinary Journal*, 24, 971-1010.
- Anthony, J. L., Williams, J. M., Aghara, R., Dunkelberger, M., Novak, B., & Mukherjee, A. D. (2010). Assessment of individual differences in phonological representation. *Reading and Writing: An Interdisciplinary Journal*, 23, 969-994.
- Anthony, J. L., Solari, E.J., Williams, J. M., Schoger, K.D., Zhang, Z, Branum-Martin, L., & Francis, D.J. (2009). Development of bilingual phonological awareness in Spanish-speaking English language learners: The roles of vocabulary, letter knowledge, and prior

- phonological awareness. *Scientific Studies of Reading*, 13, 535-564.
- Assel, M., & Anthony, J. L. (2009). Factor structure of the DIAL-3: A test of theory-driven versus empirically-driven conceptualizations in a nationally representative sample. *Journal of Psychoeducational Assessment*, 27, 113-124.
- Barth, A. E., Catts, H., & Anthony, J. L. (2009). Component skills underlying reading fluency in adolescent readers: A latent variable analysis. *Reading and Writing: An Interdisciplinary Journal*, 22, 567-590.
- Landry, S., Anthony, J. L., Swank, P., & Monsegue-Bailey (2009). Effectiveness of comprehensive professional development for teachers of at-risk preschoolers. *Journal of Educational Psychology*, 101, 448-465.
- Lonigan, C. J., Anthony, J. L., Phillips., B. M., Purpura, D. J., McQueen, J., & Wilson, S. B. (2009). The nature of preschool phonological processing abilities and their relations to vocabulary, general cognitive abilities, and print knowledge. *Journal of Educational Psychology*, 101, 345-358.
- Barth, A. E., Stuebing, K. K., Anthony, J. L., Denton, C. A., Mathes, P. G., Fletcher, J. M., & Francis, D.J. (2008). Agreement among response to intervention criteria for identifying responder status. *Learning and Individual Differences*, 18, 296-307.
- Taylor, H., Anthony, J. L., Aghara, R., Smith, K. E., & Landry, S. H. (2008). The interaction of early maternal responsiveness and children's cognitive abilities on later decoding and reading comprehension. *Early Education and Development*, 19, 188-207.
- Anthony, J. L. & Assel, M. A. (2007). A first look at the validity of the Spanish version of the DIAL-3. *Journal of Psychoeducational Assessment*, 25, 165-179.
- Anthony, J. L., Assel, M. A., & Williams, J. M. (2007). Exploratory and confirmatory factor analysis of the DIAL-3: What does this "screeener" really measure? *Journal of School Psychology*, 45, 423-438.
- Anthony, J. L., Williams, J. M., McDonald, R., & Francis, D. J. (2007). Phonological processing and emergent literacy in younger and older preschool children. *Annals of Dyslexia*, 57, 113-137. PMID 18058023
- Anthony, J. L., Williams, J. M., McDonald, R., Corbitt-Shindler, D., Carlson, C. D., & Francis, D. J. (2006). Phonological processing and emergent literacy in Spanish speaking preschool children. *Annals of Dyslexia*, 56, 239-270. PMID 17849200
- Denton, C. A., Fletcher, J. M., Anthony, J. L., & Francis, D. J. (2006). An evaluation of intensive interventions for students with persistent reading difficulties. *Journal of Learning Disabilities*, 39, 447-466.
- Anthony, J. L. & Francis, D. J. (2005). Development of phonological awareness. *Current Directions in Psychological Science*, 14, 255-259.
- Anthony, J. L., Lonigan, C. J., Vernberg, E. M., La Greca, A. M., Silverman, W. K. & Prinstein, M. J., (2005). Multisample cross-validation of a model of childhood Posttraumatic Stress Disorder symptomatology. *Journal of Traumatic Stress*, 18, 667-676.
- Mathes, P. G., Denton, C. A., Fletcher, J., Anthony, J. L., Francis, D. J., & Schatschneider, C. (2005). The effects of theoretically different instruction and student characteristics on the skills of struggling readers. *Reading Research Quarterly*, 40, 148-183.
- Anthony, J. L., & Lonigan, C. J. (2004). The nature of phonological sensitivity: Converging evidence from four studies of preschool and early grade-school children. *Journal of Educational Psychology*, 96, 43-55.
- Denton, C.A., Anthony, J.L., Parker, R., & Hasbrouck, J. (2004). Effects of two tutoring

- programs on the English reading development of Spanish-English bilingual students. *The Elementary School Journal*, 104, 289-305.
- Anthony, J. L., Lonigan, C. J., Driscoll, K., Phillips, B. M., & Burgess, S. R. (2003). Phonological Sensitivity: A quasi-parallel progression of word structure units and cognitive operations. *Reading Research Quarterly*, 38, 470-487.
- Lonigan, C. J., Driscoll, K., Phillips, B. M., Cantor, B. G., Anthony, J. L., & Goldstein, H. (2003). Evaluation of a computer-assisted instruction program for phonological sensitivity with preschoolers at-risk for reading problems. *Journal of Early Intervention*, 24, 248-262.
- Anthony, J. L., Lonigan, C. J., Burgess, S. R., Driscoll Bacon, K., Phillips, B. M., & Cantor, B. G. (2002). Structure of preschool phonological sensitivity: Overlapping sensitivity to rhyme, words, syllables, and phonemes. *Journal of Experimental Child Psychology*, 82(1), 65-92.
- Anthony, J. L., Lonigan, C. J., Hooe, E. & Philips, B. M. (2002). An affect-based, hierarchical model of temperament and its relations to internalizing problems. *Journal of Clinical Child and Adolescent Psychology*, 31, 480-490.
- Foorman, B.R., Anthony, J., Seals, L., & Mouzaki, A. (2002). Language development and emergent literacy in preschool. *Seminars in Pediatric Neurology*, 9, 173-184.
- Lonigan, C. J., Burgess, S. R., & Anthony, J. L. (2000). Development of emergent literacy and early reading skills in preschool children: Evidence from a latent variable longitudinal study. *Developmental Psychology*, 36, 596-613.
- Anthony, J. L., Lonigan, C. J., & Hecht, S. A. (1999). Dimensionality of Posttraumatic Stress Disorder symptoms in children exposed to disaster: Results from confirmatory factor analyses. *Journal of Abnormal Psychology*, 108, 326-336.
- Lonigan, C. J., Anthony, J. L., Bloomfield, B., Dyer, S. M., & Samwel, C. (1999). Effects of two preschool shared reading interventions on the emergent literacy skills of children from low-income families. *Journal of Early Intervention*, 22, 306-322.
- Lonigan, C. J., Bloomfield, B., Anthony, J. L., Phillips, B., Bacon, K., & Samwel, C. (1999). Relation between emergent literacy skills and social competence in preschool children: A comparison of at-risk and typically developing children. *Topics in Early Childhood Special Education*, 19, 40-53.
- Lonigan, C. J., Anthony, J. L., & Shannon, M. P. (1998). Diagnostic efficacy of posttraumatic symptoms in children exposed to disasters. *Journal of Child Clinical Psychology*, 27, 255-267.
- Lonigan, C. J., Burgess, S. R., Anthony, J. L., & Barker, T. A. (1998). Development of phonological awareness in two- to five-year-old children. *Journal of Educational Psychology*, 90, 294-311.

### **Publications – Book Chapters**

- Foorman, B.R., Seals, L., Anthony, J., & Durodola S. (2003). A Vocabulary Enrichment Program for Third and Fourth Grade African-American Students: Description, Implementation, and Impact. In B. Foorman (Ed.), *Preventing and Remediating Reading Difficulties: Bringing Science to Scale*. (pp. 419-444). Timonium, MD: York Press.
- Denton, C. A., Fletcher, J. M., Simos, P. G., Papanicolaou, A. C., & Anthony, J. L., (2007). An Implementation of a Tiered Intervention Model: Reading Outcomes and Neural Correlates. In D. Haager, J.K. Klingner, & S.Vaughn (Eds), *Evidenced-based Reading*

*Practices for Response to Intervention*. (pp. 107-138). Baltimore, Maryland: Paul H. Brookes.

Landry, S. H., Assel, M. A., Anthony, J. L., & Swank, P. R. (2013). Development of a Universal Screening and Progress Monitoring Tool and Its Applicability for Use in Response to Intervention. In V. Buysse & E. S. Peisner-Feinberg (Eds), *Handbook of Response to Intervention in Early Childhood*. (pp. 155-168). Baltimore, Maryland: Paul H. Brookes.

### **Publications – Manuscripts in review**

Anthony, J. L., Davis, C., Williams, J. M., & Anthony, T. I. (2013). *Preschoolers' oral language abilities: A multilevel examination of dimensionality*. Manuscript submitted for publication.

Davis, C., Anthony, J. L., Dunkelberger, M., Aghara, R., & Williams, J. (2013). *Development and validation of a brief assessment of preschoolers' articulation: The Houston Sentence Repetition Test of Articulation*. Manuscript submitted for publication.

Piasta, S. B., Phillips, B. M., Williams, J. M., Bowles, R. P., & Anthony, J. L. (2013). *Measuring young children's alphabet knowledge: Development and validation of brief letter-sound knowledge assessments using item response theory*. Manuscript submitted for publication.

### **Editorial Activities**

Editorial Board Member: Journal of Learning Disabilities, Journal of Applied Psycholinguistics, Scientific Studies of Reading, Journal of School Psychology

Ad Hoc Editorial Consultant: Assessment; Journal of Educational Psychology; British Journal of Educational Psychology; Journal of Developmental Psychology; Child Developmental; Topics in Early Childhood Special Education; Early Education and Development; Early Childhood Research Quarterly; Journal of Speech, Language, and Hearing Research; Language, Speech, and Hearing Services in Schools; Scientific Studies of Reading; Reading and Writing: Interdisciplinary Journal; Reading ; Annals of Dyslexia; Current Directions in Psychological Science; Journal of Clinical and Consulting Psychology; Journal of Experimental Child Psychology

**Curriculum Vitae**  
**Michael A. Assel, Ph.D.**

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**EDUCATION AND TRAINING**

08/1983 – 12/1987	Louisiana State University, Baton Rouge, LA.	B.A. Psychology
08/1999 – 12/1991	Nicholls State University Thibodaux, LA	M.A. Honor Graduate Psychological Counseling
08/1992 – 5/1999:	University of Houston Houston, TX	Ph.D. Counseling Psychology

**POSTGRADUATE TRAINING:**

08/1997-08/1998:	Houston Independent School District- Predoctoral Internship.	
08/1998-04/2000	University of Texas Health Science Center Postdoctoral Fellowship- Clinical Supervision: Dr. Susan H. Landry	

**RESEARCH AND PROFESSIONAL EXPERIENCE**

2008 – Present	Associate Professor (NTC), Department of Pediatrics, University of Texas Health Science Center - Houston
2000 – 2008	Assistant Professor, Department of Pediatrics, University of Texas Health Science Center - Houston

**SELECTED PUBLICATIONS**

Landry, S. H., Zucker, T. A., Taylor, H. B., Swank, P. R., Williams, J. M., Assel, M. A., Crawford, A., Huang, W., Clancy-Menchetti, J., et. al., (in press). Enhancing Early Childcare Quality and Learning for Toddlers at Risk: Responsive Early Childhood Program. **Developmental Psychology.**

Silva, K., M., Spinrad, T. L., Eisenberg, N., Sulik, M. J., Valiente, C., Huerta, S., Edward, A., Eggum, N. D., Kupfer, A., Lonigan, C. J., Phillips, B. M., Wilson, S. B., Clancy-Menchetti, J., Landry, S. H., Swank, P., Assel, M., & Taylor, H. Relations of children's effortful control and teacher-child relationship quality to school attitudes in a low-income sample. *Early Education and Development*, 22(3), 434-460, 2011.

Landry, S.H., Anthony, J.L., Swank, P.R., & Assel, M.A. An Experimental Study Evaluating Professional Development Activities within a State Funded Pre-Kindergarten Program. *Reading and Writing: An Interdisciplinary Journal*, Accepted for publication, 24 (8), 971-1010, 2011.

Sulik, M., Huerta, S., Zerr, A. A., Eisenberg, N., Spinrad, T. L., Valiente, C., De Giunta, L., Pina, A. A., Eggum, N. D., Sallquist, J., Edwards, A., Kupfer, A., Lonigan, C. J., Phillips, B.

M., Wilson, S. B., Clancy-Menchetti, J., Landry, S. H., Swank, P., Assel, M., & Taylor, H. The factor structure of effortful control and measurement invariance across ethnicity and sex in a high-risk sample. *Journal of Psychopathology and Behavioral Assessment*, 32(1), 8-22, 2010.

Assel, M.A., & Anthony, J.L.: Factor structure of the DIAL-3: A test of the theory-driven conceptualization versus an empirically-driven conceptualization in a nationally representative sample. *Journal of Psychoeducational Assessment*, 27-2, 113-124, 2009.

Anthony, J.L., Assel, M.A., Williams, J.: Exploratory and Confirmatory Factor Analyses of the DIAL-3: What does this “screener” really measure? *Journal of School Psychology*, 43, 423-438, 2007.

Anthony, J.L., & Assel, M.A.: A first look at the validity of the DIAL-3: Spanish version. *Journal of Psychoeducational Assessment*, 25, 165-179, 2007.

Assel, M., Landry, S.H., Swank, P.R., & Gunnewig, S.: An Evaluation of Curriculum, Setting, and Mentoring on the performance of Children Enrolled in Pre-kindergarten. *Reading and Writing: An Interdisciplinary Journal*, 20, 463-494, 2007.

Dieterich, S.E., Assel, M.A., Swank, P. R., Smith K.E., & Landry, S.L.: The impact of maternal verbal scaffolding and child language abilities on later decoding and reading comprehension skills. *Journal of School Psychology*, 43, 481-494, 2006.

Landry, S. H., Swank, P.R., Smith, K.E., Assel, M.A., & Gunnewig, S.: Enhancing early literacy skills for pre-school children: Bringing a professional development model to scale. *Journal of Learning Disabilities*, 39, 306-324, 2006.

Eichmeyer, J., Northrup, H., Assel, M., Goka, T. Johnston, D. Tucker-Williams, A. (2005). An assessment of risk understanding in Hispanic genetic counseling patients. *Journal of Genetic Counseling*, 14, 319-328.

Assel, M., Landry, S., Swank, P., Smith, K., & Steelman, L.: Precursors to mathematical skills: Examining the roles of visual spatial skills, executive processes, and parenting factors. *Applied Developmental Science*, 7, 27-38, 2003.

Assel, M.A., Landry, S. H., Swank, P. R., Steelman L., Miller-Loncar C., K. Smith E. How do mothers' childrearing histories, stress and parenting affect children's behavioural outcomes? *Child Care, Health & Development*, 28, 359-368, 2002.

Stelman L., Assel, M.A., Swank, P.R., Smith, K.E., and Landry, S.H.: Early Maternal Warm Responsiveness as a Predictor of Child Social Skills: Direct and Indirect Paths of Influence over Time. *Journal of Applied Developmental Psychology*, 23, 135-156, 2002

Landry, Susan H; Smith, Karen E; Swank, Paul R; Assel, Mike A; Vellet, Sonya: Does early responsive parenting have a special importance for children's development or is consistency across early childhood necessary? *Developmental Psychology* 37:3, 387-403, 2001.

Sandhu, D. H. & Assel, M. A : Effects of gender and cultural variables on the perception of individuals toward middle-age. *Journal of Young Adulthood and Middle-Age*, 3: 76-86 1991

### **Chapters:**

Assel, M.A., Landry, S.H., & Swank, P.R. Are Early Childhood Classrooms Preparing Children to be School Ready?: The CIRCLE Teacher Behavior Rating Scale. In L. Justice & C. Vukelich (Eds.), *Achieving Excellence in Preschool Literacy Instruction*, (pp. 120-135). New York, NY: The Guilford Press (2008).

Landry, S., Assel, M.A., Anthony, J., & Swank, P.R. Development of a Universal Screening and Progress Monitoring Tool and Its Applicability for Use in Response to Intervention. In V. Buysse & E. Peisner-Feinberg (Eds.), *Handbook on RTI in Early Childhood* (pp. 155-168). Baltimore, MD: Brooks Cole Publishing (2013).

### **SELECTED MEASUREMENT TOOLS AND CURRICULUM MATERIALS**

Landry, S.H., Assel, M.A., Gunnewig, S. & Swank, P.R.. Dynamic assessment procedures for children enrolled in pre-kindergarten. Rapid Vocabulary, Rapid Letter Naming Phonological Awareness Screener. (Development and validation of a commercially available assessment for pre-kindergarten children), 2003.

Landry, S.H., Assel, M.A., Gunnewig, S. & Swank, P.R. CIRCLE- Phonological Awareness, Language & Literacy System. Commercially produced assessment of preacademic skills for children enrolled in pre-kindergarten, August, 2004.

Assel, M., Swank, P., Landry, S. (2004). Instrument analysis paper for the national evaluation of Early Reading First. Presented to U.S. Department of Education, Institute for Educational Sciences.

Assel, M. (2006). CIRCLE-Phonological Awareness, Language, & Literacy System: Math Supplement. Commercially produced assessment of pre-K math abilities, July, 2006.

### **Videos**

Administration and scoring of Preschool Language Scale-3<sup>rd</sup> Edition. Video produced for use in training of Even Start staff to use in program evaluation. Summer 2001.

Produced an online learning module entitled *Understanding Special Needs* for inclusion in the Texas School Ready online professional development course.

SUPPORT

### **Research Support.**

IES (Landry)

7/1/2012-7/1/2016

**Small Group Approaches for English Language Learners:** This 4 year project is studying the effectiveness of a comprehensive Spanish school readiness curriculum combined with small group instruction towards improving literacy, language, math and social skills for a local group of prekindergarten ELL children from low-income backgrounds.

Role: Co-Investigator (15%)

HRSA (Filipek)

8/1/2012-8/1/2016

LoneStar LEND (i.e., Leadership Education in Neurodevelopmental Disabilities): The LoneStar LEND is a collaborative effort between UTHealth, University of Houston, Texas Women's University, University of Houston Clear Lake and Baylor College of Medicine. Its purpose is to improve global service delivery, including increased identification and diagnosis of Autistic Spectrum and other Neurodevelopmental Disabilities (ASD/ND), to children with ASD/ND across the state of Texas in the Core Disciplines by providing training not only in the Texas Medical Center, but also across the entire state through a Distance Learning Initiative and annual conference.

Role: Core-Faculty (5%)

IES (Barnes)

7/1/2012-7/1/2016

Pre-K Tutor-Based Mathematics and Attention Interventions: This research project will test the effectiveness of a preschool program, *Pre-K Mathematics Tutorial*, and the combination of this program with attention training, for improving the mathematical knowledge of preschool children who are especially low performing in mathematics and at highest risk for mathematical difficulties in school. The approach of combining mathematics and attention training is based on findings from developmental psychology, math learning disability research, and cognitive neuroscience that point to a strong link between mathematical learning and attention.

Role: Co-Investigator (10%)

IES (Anthony)

7/1/2012-7/1/2016

*School Readiness Curriculum Based Measurement System (SR-CBMS)*: This project will include research-based progress monitoring tools for both English-speaking children and young Spanish-speaking English learners to assess skills in vocabulary, letter identification, letter sounds and phonological awareness. Many children, especially those from ethnic and language minority groups, lag behind in development of these critical school readiness skills, which places them at risk for academic failure.

Role: Co-Investigator (5%)



- Assist in the development, implementation, and management of a multi-million dollar annual budget.
- Manage communications, government relations and public affairs.

2006-2008

**Director of Research and Public Policy.** Children’s Defense Fund, Austin, Texas.

- Responsible for creating, implementing, and managing a strategic early childhood education and health research and public policy agenda within the framework of a coalition comprised of 240 member organizations.
- Coordinated and managed a public policy agenda through legislative briefings, providing expert testimony at key committee hearings (written and oral), legislative study groups, political negotiations with various stakeholders, bill tracking, writing policy briefs, and policy analyses.
- Conducted qualitative and quantitative research projects.

2005-2006

**Research Associate.** University of Texas Center for Education Policy, Austin, Texas.

- Conducted education-based policy and research projects in the following areas: academic transitions for migrant students, college readiness, and professional learning communities at the high school level.
- Planned, organized, and facilitated statewide education summits on critical issues facing Texas schools and communities.

2002-2005

**Dean of Academics** (Curriculum, Instruction, & Guidance). Holy Cross Middle & High School (Edgewood ISD), San Antonio, Texas.

- Developed and managed a comprehensive academic excellence reform plan for 700 students, grades 6-12.
- Supervised, mentored, and coached 30 professional teachers and collaborated with them to develop ongoing growth plans.
- Worked closely with parents to brainstorm and implement effective student engagement practices aligned with college and workforce transitions.
- Taught Advanced Placement English Literature, Language and Composition.

2001-2002

**Advanced Placement English Instructor.** San Antonio ISD (In Collaboration with the University of Texas at San Antonio’s K-16 Initiatives Program).

1997-2001

**Engineering Instructor and Senior Watch Officer.** U.S. Merchant Training Vessel, *Empire State*, New York Merchant Marine Academy.

**Engineer.** *SS Leader*, Sabine Shipping Company. United Nations (UN) Food for Oil Program.

1995-1997

**Chief Engineer.** Sharon Hospital, Sharon, Connecticut.

## CONSULTANCIES and SPECIAL PROJECTS

2012-2013

**W.K. Kellogg Foundation**, Battlecreek, Michigan.

■ Worked with City of Detroit and Community-Based Early Childhood Organizations representing the Mississippi Delta to improve management operations in order to leverage improved outcomes for leadership, teachers, and children.

2011-2013

**Teaching and Mentoring Communities**, Laredo, Texas.

■ Provided ongoing strategy for school readiness initiatives affecting migrant and seasonal children and families.

2007

**E3 Alliance** (Austin Area Research Organization, Austin Community College System, UT System).

■ Provided strategic research assistance on P-16, longitudinal outcomes analysis project, from early childhood education to workforce placement.

2007

**International High School**. Austin ISD, Austin, Texas.

■ Worked collaboratively with high school teachers and administrators on the implementation and development of professional learning communities and best practices in secondary immigrant student curriculum and instruction.

2006

**Corporation for Public School Education, K-16**. Round Rock, Texas.

■ Provided guidance and research assistance on a project analyzing student grade retention practices in select Texas elementary schools.

## SELECT INVITED ADDRESSES

*Systematic Approaches to Leveraging School Readiness Outcomes*. Yale University School of Management.

*Building and Sustaining an Early Childhood Health and Education Data System*. Institute for Education Sciences Student Longitudinal Data System Conference.

*Innovation in Early Childhood Systems Thinking*. Region VI Head Start Leadership Conference.

*Lifting Pre-K Quality*. Center for Law and Social Policy.

*Transforming Texas' Early Childhood Education System*. Texas Association for the Education of Young Children.

*Improving Outcomes for Children in San Antonio*. Mayor's Early Childhood Leadership Taskforce.

*Early Childhood Education: Implications for Economic Development*. Texas Association of Business Annual Conference.

*Building Partnerships for School Readiness Integration*. Texas Association of Community Action Agencies, Annual Conference.

*Raising Williamson County Early Childhood Taskforce.* Round Rock Independent School District.

*Outcomes and Accountability in Pre-K: Understanding the Debate.* Teach For America Policy and Advocacy Leadership Initiative.

*A Philanthropic Approach to Early Childhood Education: Strategies for Local Change.* Women in Philanthropy Stakeholder Meeting, Chisholm Trail Communities Foundation, Georgetown, TX.

*An Ecological Approach to P-16 Initiatives.* Texas Center for Education Policy at the University of Texas at Austin.

*Coalition Politics and the Future of Collaborations between Community-Based Organizations and Local School Boards.* Texas Association of School Boards, Austin, TX.

*Making Economic Sense of Early Childhood Education in Texas.* Chamber of Commerce, Dallas, TX.

*Thinking Beyond Institutional Separation: The Promise of Mixed-Delivery Early Childhood Education.* Texas Head Start Annual Conference, Houston, TX.

*Making Sense of Texas' Early Childhood Policy Climate.* Texas Association of Administrators and Supervisors of Programs for Young Children, Austin, TX.

#### **SELECT SERVICE ACTIVITIES**

*Past Chairman and Member,* Texas Governor's Early Learning Council. Appointed by Governor Rick Perry in 2009 (2009-Present).

*Board Member,* Knowledge is Power Program (KIPP) Head Start, Houston, Texas (2012-present).

*National Advisory Board Member,* Transforming Early Childhood Communities Systems Initiative, a joint project of the UCLA Center on Healthier Children, Families, and Communities, and United Way Worldwide (2011-present).

*Advisory Member,* Early Childhood Education Implementation Team, *Raising Texas* Federal Initiative, Texas Department of Health and Human Services. (2007-Present).

*School Board Member,* St. Mary Magdalene Catholic School, Humble, Texas. (2011-2012).

*Advisory Board Member,* Texas Parents as Teachers. (2008-2009).

*P-16 Advisory Board Member,* Outreach and Success Advisory Committee, Texas Higher Education Coordinating Board (2007).

**M. Sriram Iyengar, PhD**  
Associate Professor of Biomedical Informatics

**Professional Training:**

- 1974 B.Tech, Electrical Engineering, Indian Institute of Technology, Madras, India.
- 1977 MSc (Engg) Electrical Communications Engineering, Indian Institute of Science, Bangalore, India
- 1980 MS (Statistics) The Ohio State University, Columbus, Ohio
- 1995 PhD (Computer Science), The Ohio State University, Columbus, Ohio

**Academic Appointments:**

- August 2003 to Aug 2004: Adjunct Assistant Professor, UTHSC-H, School of Health Information Sciences
- Aug 2004 to present: Assistant Professor, UTHSC-H, School of Health Information Sciences
- Sep 2011 to present: Associate Professor, UTHSC-H, School of Biomedical Informatics

**Other Employment:**

- 1980-1987 Systems Analyst, Division of Computing Services, College of Medicine, The Ohio State University, Columbus, Ohio
- 1987-1995 Researcher and Systems/Network Manager, Division of Medical Informatics, The Ohio State University, Columbus, Ohio
- 1995-1998 Senior Architect, Senior Consultant, NetForce, Inc., San Francisco, California
- 1998-1999 Vice President Product Development, Aadroitt Systems, N. Hollywood, California
- 1999-2001 Vice President Software Engineering, HelloBrain Corporation, Santa Clara, California
- 2001-2002 Consultant, HelloBrain Corporation Professional Service
- 2002-2002 Visiting Scientist, Computer Science Laboratory, SRI International, Menlo Park, California
- 2002-2004 Informatics Research Scientist, National Space Biomedical Research Institute, NASA Johnson Space Center and Baylor College of Medicine, Houston, Texas

**Professional Organizations and Committees:**

- 2005 to present Association of Clinical Scientists  
Vice Chair of Informatics Committee 2007 to present
- 2008 to present Fulbright Specialist, Council for International Exchange of Scholars

**Service on National Grant Review Panels, Study Sections, Committees:**

- 2011 Scientific Program Committee, Persuasive 2012 Scientific Program Committee  
CBMS 2011
- 2005, 2006 Reviewer on ad hoc NIH Special Study Sections 2009 Reviewer for NIH,  
RC1 Challenge grants.

## Honors and Awards:

- 2012 Teaching Incentive Award
- 2011 John P McGovern Outstanding Teacher Award
- 2008 UTHSCH Young Investigator Award 2007.
- 2008 Microsoft research – One of 14 out of 144 winners of worldwide competition: Cellphone as a platform for HealthCare

## Selected Publications:

### *Refereed Original Articles in Journals*

1. Myneni, S., **Iyengar, S.**, Cobb, N. K., & Cohen, T. (2013). Identifying Persuasive Qualities of Decentralized Peer-to-Peer Online Social Networks in Public Health. In *Persuasive Technology* (pp. 155-160). Springer Berlin Heidelberg.
2. **Iyengar, MS**, Florez-Arango, JF (2013), Decreasing workload among community health workers using interactive structured rich media guidelines on smartphones. *Technology and Healthcare*, 1;21(2):113-23
3. Joshi A., Novaes M, Machiavelli JL, **Iyengar MS**, Vogler R, Johnson C, Zhang J, Hsu CE (2012). A Human Centered Geovisualization framework to facilitate visual exploration of Telehealth data: A case study. *Technology and Healthcare*, 20(6), 487- 501
4. Joshi A., Novaes M, Machiavelli JL, **Iyengar MS**, Vogler R, Johnson C, Zhang J, Hsu CE(2012), Designing Human Centered GeoVisualization application the SanaViz for telehealth users: A case study. *Technology and Healthcare*, 20(6), 503-518.
5. Joshi A, Novaes M, **Iyengar, MS**, Machiavelli, JL, Jiajie Zhang, J, Vogler, R, Hsu CE. (2011), Evaluation of a tele-education programme in Brazil. *J Telemed Telecare*;17(7):341-5. Epub 2011 Sep 20
6. McGuire MF, **Iyengar, MS**, Mercer, DW, Data driven linear algebraic methods for analysis of molecular pathways: Application to disease progression in shock/trauma. 2012; 45(2), 372-387
7. Joshi A, Novaes MA, **Iyengar MS**, Machiavelli JL, Zhang J, Vogler R, Hsu CE. Evaluation of Telemedicine Project in Brazil. *J Telemed Telecare*, 2011;17(7):341-5. Epub 2011 Sep 20.
8. McGuire MF, **Iyengar, MS**, Mercer, DW, Computational Approaches for Translational Clinical Research in Disease Progression. *Journal of Investigative Medicine*, 2011, 59:6.
9. Minard, CG, Carvalho, MF, **Iyengar, MS**, Optimizing Medical Resources for Space Flight Using the Integrated Medical Model. *Aviation, Space and Environmental Medicine*, 2011, 82:9
10. Florez-Arango, MF, **Iyengar, MS**, Dunn, K, Zhang, J. Performance factors of mobile rich media job aids for community health workers. *JAMIA* 2011;18:131-137
11. Jastrow KM 3rd, Gonzalez EA, McGuire MF, Suliburk JW, Kozar RA, **Iyengar S**, Motschall DA, McKinley BA, Moore FA, Mercer DW. "Early cytokine production risk stratifies trauma patients for multiple organ failure", *J Am Coll Surg*. 2009 Sep;209(3):320-31. Epub 2009 Jun 28
12. Tanaka LY, Herskovic JR, **Iyengar MS**, Bernstam EV. "Sequential result refinement for searching the biomedical literature", *J Biomed Inform*. 2009 Aug;42(4):678-84. Epub 2009 Mar 9
13. **Iyengar, MS**, Carruth, T, Flores-Arango, JF, Dunn,K, "Informatics-based Medical

- Procedure Assistance during Space Missions" . *Hippokratia* v.12 fasc.s1 p.23 - 27, 2008
14. Khodade P, Malhotra S, Kumar N, **Iyengar MS**, Balakrishnan N, Chandra N. "Cytoview: development of a cell modelling framework", *J Biosci.* 2007 Aug;32(5):965-77
  15. J Herskovic, EV Bernstam, **M Sriram Iyengar**, Using Hit Curves to Compare Search Algorithm Performance. *Journal of Biomedical Informatics*, 40:2, Pages 93-99, 2007.
  16. D Ruths, L. Nakhleh, **M Sriram Iyengar**, et al. Hypothesis Generation in Signaling Networks. *Journal of Computational Biology*, 13:9, Pages 154 –1557, 2006.
  17. **M. Sriram Iyengar**, M. Singhal. Effect of Network Delays on Load Sharing in Distributed Computing Systems, *Jour. Parallel and Distributed Computing.* 66:6, June 2006, Pages 839-853.
  18. EV Bernstam, JR Herskovic, Y Aphinyanaphongs, CF Aliferis, **MG Sriram**, WR Hersh, Using citation data to improve retrieval from MEDLINE. *Journal of the American Medical Informatics Association*, 13:1, pp 96-105, January 2006
  19. **Sriram, M.G.** (2003) Modeling protein functional domains in Signal Transduction using Maude. *Briefings in Bioinformatics*, 4(3).
  20. **Sriram, M.G.**, Singhal, M. (1995) Measures of Load Sharing Potential in Distributed Computer Systems. *IEEE Trans Software Engineering*, vol 21, nr. 5, pg 468-475.
  21. **Sriram, M.G.**, Van, der, Meulen, EC., Dudewicz, E.J., Teoh, K.W. (1995) Entropy Based Evaluation of Random Numbers. *American Journal of Mathematical and Management Sciences*, 15: 115-153.
  22. Mokry, H., Rao, B., George, J.M., **Sriram, M.G.** (1987) Effect of Two-Week Infusion of Deamino D-Arginine Vasopressin in Rats. *Hormone Research*, 25: 60-64.
  23. Minton, J.P., Abou-Issa, H.A., Foecking, M.K., **Sriram, M.G.** (1983) Caffeine and unsaturated fat diet significantly promotes DMBA-induced breast cancer in rats. *Cancer*, 51.

#### Chapters

1. S.R. Simon., **Sriram, M.G.**, et al., (1996) Applications of Intelligent Multimedia technology in Human Motion Analysis. In Harris GF;Smith PA (Ed.), Human Motion Analysis: Current Applications and Future Directions. IEEE Press

#### Books

1. **Iyengar, Sriram** (2013) Science of Computing, Quantum Scientific, Pittsburgh, PA
2. **Iyengar, M Sriram**, (Ed) (2010) Symbolic Systems Biology, Jones and Bartlett, Sudbury, MA

#### Presentations

1. Gautham M, **Iyengar, MS**, Johnson CW, Shyamprasad, KM. (2012), Mobile Phone based clinical guidance for rural health providers in India. Tenth International Conference on Information Communication technologies in Health, Samos
2. **Iyengar, MS**. Field Studies in Mobile Health. (2012) Presentation at 34<sup>th</sup> Annual conference of the IEEE Engineering in Medicine and Biology Society, San Diego, August 2012
3. **Iyengar, MS**. The GuideVue system for Mobile Phones & Tablets (2012). Invited presentation, Fourth Annual Emerging technologies Conference. Houston, TX, June 2012.
4. Pinzon, OE, **Iyengar, MS**, Persuasive Technology and Mobile Health: A Systematic Review (2012). Poster presentation Persuasive 2012, Copenhagen, June 2012

5. **Iyengar, MS.** Field Studies in Mobile Health (2012). Invited Presentation at Tecnotronica conference, Morelia, Mexico, March 2012.
6. **Iyengar, MS.** Field Studies in Mobile Health. (2012) Invited Presentation to Dept of Behavioral Sciences, MD Anderson Cancer Center, January 2012
7. Gautham M, **Iyengar, MS**, Johnson CW, Shyamprasad, KM. (2011), Mobile Phone based clinical guidance for rural health providers in India. Poster presentation, mHealth Summit, Washington DC, December 2011
8. Iyengar, MS. M Sriram Iyengar: Multi-layer modeling in systems biology. Invited keynote talk, First International Symposium on Symbolic Systems Biology. Kanagawa, Japan, November 2011.
9. **Iyengar, MS**, Florez-Arango, JF. (2010) Persuasive Aspects of a rich-media mobile health system. Persuasive2010, Copenhagen, Denmark, June 2010
10. **Iyengar, MS.** The GuideView system for Mobile Health. ATA2010, American Telemedicine Association, San Antonio, TX May 2010. (Invited Presentation)
11. McGuire MF, **Iyengar, MS**, Mercer DW. Measuring Crosstalk in Biological Pathways. (Poster). Research Day. University of Texas Health Science Center at Houston. (November 2009). Poster Award: 2nd Place Student Clinical and Translational Research.
12. **Iyengar, MS**, Florez-Arango, JF, Reducing Errors in Community Health Workers Using Rich media Structured Guidelines on Cell Phones. Invited Presentation. Foundation of the National Institutes of Health mHealth Summit, Washington DC, October 2009.
13. **Iyengar, MS**, Svirebely JR, The Medical Algorithms Project. EUSPRIG 2009, European Spreadsheet Risks Interest Group Annual Meeting, Paris, France, July 2009.
14. McGuire MF, **Iyengar MS**, Mercer DW. Towards the Systems Biology of Trauma. 7th International Conference on Pathways, Networks, and Systems Medicine (Presentation); Corfu, Greece. Aegean Conferences 2009. (June 2009).
15. **Iyengar, MS**, Florez, JF, Garcia, AG. Structured Multi-modal Guidelines on Cell Phones and Mobile Devices. Microsoft External Research Symposium, (Poster) Redmond Washington, Feb 2009
16. Brown RE, McGuire MF, Law A, **Iyengar MS**. Morphoproteomic-Guided Modeling Incorporates Layers of Heterogeneous Knowledge and Converges on the NF- KappaB Pathway in Glioblastoma Multiforme. Annual Meeting of the Association of Clinical Scientists, Marina del Rey, CA, May 2008.
17. De J, Brown RE, **Iyengar MS**, McGuire MF. Morphoproteomic characterization of signal transduction pathways in adult CD133+ stem cells derived from human bone marrow. Annual Meeting of the Association of Clinical Scientists, Marina del Rey, CA, May 2008.
18. McGuire MF, **Iyengar, MS**, Mercer DW. Temporal Analysis of Signaling Pathways in Multiple Organ Failure. 7th Int. Conference on Complexity in Acute Illness/International Shock Conference, Cologne, Germany July 2008.
19. **M. Sriram Iyengar**, JR Svirebely, Mirabela Rusu, JW Smith, VITA - An Interactive 3-D Visualization System to Enhance Student Understanding of Mathematical Concepts in Medical Decision-making. Proceedings of IEEE CBMS 2008, 21<sup>st</sup> international conference on Computer-based Medical Systems, Jyvaskyala, Finland, June 2008.
20. JR Svirebely, **M. Sriram Iyengar**, JW Smith, The Medical Algorithm Project ([www.medal.org](http://www.medal.org)) - A web-based resource for medical education. Poster Presentation, AMEE2008, (Association for Medical Education in Europe), Aug 2008

21. **M. Sriram Iyengar**, JR, Svirbely, M Rusu, JW Smith, VITA: 3D Visualization System to Assist Teaching of Mathematical Concepts in Medical Decision-making, Poster Presentation, AMEE2008, (Association for Medical Education in Europe), Aug 2008
22. DW Mercer, SD Adams, JW Suliburk, EA Gonzalez, RA Kozar, **M Sriram Iyengar**, MF McGuire, FA Moore. Can Cytokines Predict Multiple Organ Failure in Critically Ill Trauma Patients. Presented at 7<sup>th</sup> World Congress on Trauma, Shock, Inflammation and Sepsis, Munich, Germany March 13-17, 2007.
23. **M. Sriram Iyengar**, Jose Florez-Arango. GuideView: Interactive, Structured Multi-modal Clinical Guidelines. Oral presentation at MicroSoft Healthcare Users Group Tech Forum, Orlando, Florida, February 24, 2008.
24. Mercer DW, **Iyengar MS**, Adams SD, Suliburk JW, McGuire MF, Gonzalez EA, Kozar RA, McKinley B, Moore FA. Early Cytokine Production Risk Stratifies Trauma Patients for Multiple Organ Failure. Accepted for the 115th Scientific Session, Annual Meeting of the Western Surgical Association, Colorado Springs, CO Nov 4-7, 2007.
25. J. Florez-Arango, **M Sriram Iyengar**, Delivering Structured, Multi-modal Clinical Guidelines via Cell Phones. MedInfo2007, Brisbane, Australia, August 2007
26. **M Sriram Iyengar**, J. Florez-Arango, Demonstration of GuideView, a Multi-platform System for Interactive, Multimodal Presentation of Clinical Advice. MedInfo2007, Brisbane, Australia, August 2007
27. T. Carruth, **M Sriram Iyengar**, Informatics Support for Decompression Sickness on Space Missions, MedInfo2007, Brisbane, Australia, August 2007
28. **M. Sriram Iyengar**, D Gillis et al. GuideView: Structured, Interactive, Multimodal Delivery of Clinical Guidelines. Poster Presentation at ATA 2006 Conference, San Diego, CA.
29. **M Sriram Iyengar**, C. Talcott, R Mozzachiodi, D Baxter. Executable Symbolic Modeling of Neural Processes. Computational Methods in Systems Biology, CSMB06, Trento, Italy, October 2006.
30. **Sriram, M.G.**, Talcott, C., Lincoln, P., et al. (2003), Rovereto, Italy. Representing and Simulating Protein Functional Domains in Signal Transduction Using Maude. International Workshop on Computational Methods in Systems Biology
31. **Sriram, M.G.**, Rodriguez, J., et al. (2001) MEDAL. Medical Algorithms Project. Jornadas Argentinas de Informática e Investigación Operativa. Simposio de Informática en Salud SIS 2001 Buenos Aires, Argentina.
32. **Sriram, M.G.**, Kantor, G., Svirbely, J.R., et al. (2001) MEDAL: The Medical Algorithm Project. Medinfo 2001 London
33. **Sriram, M.G.**, Johnson, K.A., Svirbely, J.R., et al. (2001) 'Automated Medical Algorithms: Issues for Medical Errors. 2001 AMIA Symposium Washington, D C.
34. **Sriram, M.G.**, Svirbely, J. (1999) Medal, A Compendium Of Medical Algorithms For Access Over The Internet. AMIA 1999, Washington, D C
35. **Sriram, M.G.** (1984) STRATIF: A procedure for producing stratified variables. Proceedings of SUGI84, SAS Users Group International 1984 Conference, Hollywood, Florida.

**Heather B. (Wallrath) Taylor**

Assistant Professor

Medical School

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7000 Fannin, Suite 2344

Houston, TX 77030

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**Education:**

1992	BA	Psychology	Ohio University, College of Arts & Sciences
1994	MS	Human and Consumer Sciences	Ohio University, College of Health and Human Services
1994	Med	Counseling	Ohio University (CACREP approved)
2001	PhD	Counseling Psychology	University of Houston (APA approved)
2000-01	Internship	Clinical Neuropsychology	University of Texas Medical Branch

**Professional Experience:**

05/1995- 06/1996	<u>Asst. Director</u> , Trauma Survivor Program, Worthington Center, Inc., Parkersburg, WV.
06/1994- 06/1997	<u>Private Practice Counselor</u> , Worthington Center for Psychiatric Assoc., Parkersburg, WV
09/1996- 08/1998	<u>Graduate Advisor</u> , College of Education, University of Houston, Houston, TX
09/1998- 08/1999	<u>Research Asst.</u> , RR & D, Center for Excellence on Aging with Disabilities, VAMC, Houston, TX
09/1999-07/2000	<u>Research Analyst</u> , Model System SCI Center, The Institute for Rehabilitation and Research, Houston, TX
09/2001 – 10/2004	<u>Assistant Professor</u> , Dept. of Physical Medicine and Rehabilitation, Baylor College of Medicine, Associate Director for Research, Center for Research on Women with Disabilities, Houston, TX
11/2004 – Present	<u>Assistant Professor</u> , Department of Pediatrics, Children’s Learning Institute, University of Texas Health Science Center-Houston, Medical School, Houston, TX
3/2012 – Present	<u>Adjunct Associate Professor</u> , Department of Physical Medicine and Rehabilitation, University of Texas Health Science Center, Medical School, Houston, TX
3/2012 – Present	<u>Center Director of NeuroRecovery Network</u> , TIRR Memorial Hermann, Houston, TX
3/2012 – Present	<u>Director of Spinal Cord Injury Research</u> , TIRR Memorial Hermann, Houston, TX

## Professional Affiliations:

2004 – Present	International Neuropsychological Society (INS)
2012 – Present	American Spinal Injury Association (ASIA)
2001 – 2008	American Psychological Association (APA)

## Selected Publications:

1. Hughes, R.B., Taylor, H.B., Robinson-Whelen, S., & Nosek, M.A. (2005). Stress and women with physical disabilities: identifying correlates. *Women's Health Issues*. PMID 15661583
2. Hughes, R.B., Robinson-Whelen, S., Taylor, H.B., Petersen, N., & Nosek, M.A. Characteristics of depressed and non-depressed women with disabilities (2005). *Archives of Physical Medicine and Rehabilitation*, 80, 473-479. PMID 15759231
3. Robinson-Whelen, S., Hughes, R., Taylor, H., Colvard, M., Mastel-Smith, B., & Nosek, M.A. (2006). Improving the health and health behaviors of women aging with physical disabilities: a peer-led health promotion program. *Women's Health Issues*, 16, 334-345. PMID 17188216
4. Nosek, M.A., Hughes, R.B., Robinson-Whelen, S., Taylor, H.B., Howland, C.A. (2006) Physical activity and nutritional behaviors of women with physical disabilities: physical, psychological, social, and environmental influences. *Women's Health Issues*, 16, 323-333. PMID 17188215
5. Hughes, R.B., Taylor, H., Robinson-Whelen, S., & Nosek, M. (2006) Stress self-management: An intervention for women with physical disabilities. *Women's Health Issues*. PMID 17188222
6. Nosek, Hughes, Morgan, Petersen, Taylor, Byrne, & Robinson-Whelen, Secondary conditions in women with physical disabilities: measurement issues, prevalence, and predictors (2006). *Archives of Physical Medicine and Rehabilitation*, 87, 320-327. PMID 16500164
7. Lomax-Bream, L., Taylor, H. B. Landry, S., Barnes, M., Fletcher, J. M., Swank, P (2007). Role of early parenting and motor skills on development in children with spina bifida. *Journal of Applied Developmental Psychology*. 28, 250-263.
8. Morgan, R.O., Byrne, M.M., Hughes, R.H., Petersen, N., Taylor, H.B., Robinson-Whelen, S., Hasche, J., Nosek, M.A. (2008) Do secondary conditions explain the relation between depression and health care cost in women with physical disabilities? *Archives of Physical Medicine and Rehabilitation*. 89(10), 1880-6. PMID 18929016
9. English, L.H., Barnes, M.A, Taylor, H.B., Landry, S.H. (February 2009). Math development in Spina Bifida. *Developmental Disability Research Reviews*, 15, 28-34.
10. English, L.H., Barnes, M.A, Taylor, H.B., Landry, S.H. (2009). Mathematical development in Spina Bifida. (M. Mazzocco., Ed.) *Developmental Disability Research Reviews*, 15(1):28-34.
11. Lomax-Bream, L., Landry, S., Barnes, M., Copeland, K., & Taylor, H. (2007) The impact of spina bifida on development across the first three years. *Developmental Psychology*, 31(1) 1-20. PMID 17305435

12. Robinson-Whelen, S., Hughes, R. B., Taylor, H. B., Hall, J. W., & Rehm, L. P. (2007). Depression self-management program for rural women with physical disabilities. *Rehabilitation Psychology*, 52(3), 254-267
13. Taylor, H.B., Anthony, J., Aghara, R., Smith, K.E., & Landry, S.H. (2008). The interaction of early maternal responsiveness and children's cognitive abilities on later decoding and reading comprehension skills. *Early Education and Development*. 19(1), 188–207.
14. Landry, S.H., Taylor, H., Guttentag, C., Smith, K.E. Responsive parenting: Closing the learning gap for children with early developmental problems (2008). *International Review of Research in Mental Retardation*. 36: 27-60.
15. Taylor HB, Landry SH, Barnes M, Swank P, Cohen LB, Fletcher J. Early information processing among infants with and without Spina Bifida (2010). *Infant Behavior and Development*
16. Berman, A., Watson, E., Fried, G., D'Urso, K., D'Urso, D., Cavadini, N., Brooks, M., Kern, M., Wenzel, L., Taylor, H., Ardolino, E. Restorative rehabilitation entails a paradigm shift in pediatric incomplete spinal cord injury in adolescence: An illustrative case series (in press). *Journal of Pediatric Physical Medicine*.
17. Taylor, H.B., Barnes, M.A., Landry, S.H., Swank, P., Fletcher, J.M., and Huang, F. (2013) Motor contingency learning and infants with Spina Bifida. *Journal of the International Neuropsychological Society*
18. Berman, A., Watson, E., Fried, G., D'Urso, K., D'Urso, D., Cavadini, N., Brooks, M., Kern, M., Wenzel, L., **Taylor**, H., Ardolino, E. (2013) Restorative rehabilitation entails a paradigm shift in pediatric incomplete spinal cord injury in adolescence: An illustrative case series. *Journal of Pediatric Rehabilitation Medicine*.
19. Landry, S.H., Zucker, T., **Taylor**, H.B., Swank, P.R., Williams, J.M., Assel, M.A., Crawford, A., Clancy-Menchetti, J., Eisenberg, H., Spinrad, T.L., Valiente, C., Lonigan, C.J., Phillips, B.M., Wilson, S., Barnes, M., Starkey, P., Klein, A., and the School Readiness Consortium. (accepted) Enhancing early childcare quality and learning for toddlers at risk: The responsive early childhood program. *Developmental Psychology*
20. Landry, S.H., **Taylor**, H.B., Swank, P., Barnes, M.A., Juranek, J. (accepted) Longitudinal Mediators of Social Problem Solving in Spina Bifida and Typical Development. *Rehabilitation Psychology*
21. Pike, M., Swank, P., **Taylor**, H., Landry, S. and Barnes, M.A. (accepted) Effect of Preschool Working Memory, Language, and Narrative Abilities on Inferential Comprehension at School-Age in Children with Spina Bifida Myelomeningocele and Typically Developing Children. *Journal of the International Neuropsychological Society*

# Curriculum Vitae

## Jeffrey M. Williams

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### EDUCATION

- |      |   |
|------|---|
| 2009 | <b>Ph.D.</b> , Social Psychology, Quantitative concentration,<br>University of Houston, Houston, TX     |
| 2005 | <b>M.A.</b> , Social Psychology, University of Houston,<br>Houston, TX                                  |
| 2001 | <b>B.A.</b> , Psychology, Graduated with Honors, University of<br>Missouri—Kansas City, Kansas City, MO |

### PROFESSIONAL EXPERIENCE

June 2011 - present

**Assistant Professor and Director of Research**, Children's Learning Institute,  
University of Texas-Houston Health Sciences Center, Houston, TX

September 2009 – June 2011

**Assistant Professor**, Children's Learning Institute, University of Texas-Houston  
Health Sciences Center, Houston, TX

January 2008 – August 2009

**Statistician**, Children's Learning Institute, University of Texas-Houston Health  
Sciences Center, Houston, TX

January 2007 – January 2008

**Senior Research Assistant**, Children's Learning Institute, University of Texas-  
Houston Health Sciences Center, Houston, TX

August 2001 – May 2009

**Research Assistant**, Self and Relationship research group, University of  
Houston, Houston, TX

June 2002 – December 2002, June 2003 – December 2006

**Research Assistant**, Texas Institute for Measurement, Evaluation, and Statistics  
(TIMES), University of Houston, Houston, TX

## GRANTS

### Currently funded:

- Co-Principle Investigator (PI: S. Landry) *2012 -2013 School Readiness Models*. Texas Education Agency. October 2012- August 2013. \$11,700,000.
- Co-Principle Investigator (PI: S. Landry) *2012 -2015 Early Childhood School Readiness Program*. Texas Education Agency. September 2012- May 2015. \$3,500,000.
- Co-Principle Investigator (PI: S. Landry) *IHE Early School Readiness*. Texas Education Agency. September 2010- February 2013. \$7,500,000.
- Co-Principle Investigator (PI: J. Anthony). *Development of School Readiness Curricular based Measurement System*. Institute of Education Sciences, July 2011- June 2015. \$1,655,132.
- Co-Principle Investigator (PI: M. Barnes). *A Randomized Trial of a Tutor-Based Mathematics and Attention Intervention for Low-Performing Pre-schoolers at Risk for Mathematical Difficulties in School*. Institute of Education Sciences, September 2011 – August 2015. \$4,081,051.
- Co-Principle Investigator (PI: S. Landry). *B2B Baby Scholar*. Douglas & Maria DeVous Foundation, September 2011 – August 2013. \$313,688.
- Co-Principle Investigator (PI: S. Landry). *ARRA Texas State Advisory*. Head Start, September 2010 – August 2013. \$8,783,834.
- Co-Principle Investigator (PI: J. Anthony). *Evaluation of the Efficacy of Earobics Step 1 in ESL Children and Low SES Minority Children*. Institute of Education Sciences, June 2008- May 2013(NCX). \$2,659,751.

### Completed:

- Co-Principle Investigator (PI: S. Landry) *Texas School Ready!*. Texas Education Agency, October 2010- May 2012. \$1,700,000.
- Co-Principle Investigator (PI: S. Landry) *School Readiness Certification*. Texas Education Agency. September 2009- August 2011. \$7,500,000.
- Co-Principle Investigator (PI: S. Landry) *School Readiness Model*. Texas Education Agency. September 2008-August 2009. \$5,779,759.
- Co-Principle Investigator (PI: S. Landry) *Texas Early Education Model (TEEM)*. Texas Education Agency, September 2007- February 2010. \$7,500,000.
- Co-Principle Investigator (PI: S. Landry) *Promoting School Readiness through the Texas Early Education Model (TEEM)*. W. K. Kellogg Foundation, September 2006- August 2011. \$1,691,965.

## Not funded:

Co-Principle Investigator (PI: S. Landry). *Scalable Approaches for Preparing Early Childhood Teachers: Identifying Costs & Benefit of Evidence Based Approaches*. Institute of Education Sciences, \$3,494,429. Submitted Jun. 2011. Score: 2.37. Resubmitted Sept. 2012.

Co-Principle Investigator (PI: S. Landry). *Internet implementation of Empirically-Supported Interventions that can be Remotely Delivered in Authentic Preschool Programs for Mothers and Teachers: Evaluation of Direct Child and Teacher Outcomes*. Institute of Education Sciences, \$3,499,989. Submitted Sept. 2012.

Co-Principle Investigator (PI: P. Filipek).. National Institute of Health, July 2013 – June 2016, \$. Submitted Jun. 2011. Score: X.XX. To be resubmitted Feb. 2013.

## PUBLISHED MANUSCRIPTS

### Peer-reviewed journals

#### 2013

Anthony, J. L., **Williams, J. M.** (*in press*). Evaluation of *Raising a Reader* and Supplemental Parent Training in Shared Reading. Manuscript submitted for publication. *Early Education and Development*.

Crawford, A. D., Zucker, T. A., **Williams, J. M.**, Bhavsar, V., & Landry, S. H. (*in press*). Assessing Effective Instructional Practices of Early Childhood Teachers: Integrating Teacher Progress Monitoring into Coaching Models, *School Psychology Quarterly*.

Landry, S. H., Zucker, T., Taylor, H. B., Swank, P. R., **Williams, J. M.**, Assel, M. A., Crawford, A., Clancy-Menchetti, J., Eisenberg, N., Spinrad, T. L., Valiente, C., Lonigan, C. J., Phillips, B. M., Wilson, S., Barnes, M., Starkey, P., Klein, A., and the School Readiness Consortium (*in press*). Enhancing Early Childcare Quality and Learning for Toddlers at Risk: The Responsive Early Childhood Program. *Developmental Psychology*.

#### 2012

**Williams, J. M.**, Landry, S. H., Anthony, J. L., & Swank, P. (2012). An empirically based statewide system for identifying quality pre-kindergarten programs. *Education Policy Analysis Archives*, 20 (17). Retrieved from <http://epaa.asu.edu/ojs/article/view/1014>.

## 2011

Anthony, J. L., Greenblatt-Aghara, R., Dunkelberger, M., Anthony, T. I., **Williams, J. M.**, & Zhang, Z. (2011). What factors place children with speech sound disorder at risk for reading problems? *American Journal of Speech Language Pathology*, *20*, 146-160.

Anthony, J. L., Greenblatt-Aghara, R., Solari, E. J., Dunkelberger, M. J., **Williams, J. M.**, and Liang, L. (2011). Quantifying phonological representation abilities in Spanish speaking preschool children. *Applied Psycholinguistics*, *32*, 19-49.

Anthony, J. L., **Williams, J. M.**, Duran, L., Gillam, S., Liang, L., Greenblatt-Aghara, R., Swank, P., Assel, M., & Landry, S. (2011). Spanish phonological awareness: Dimensionality and sequence of development during the preschool and kindergarten years. *Journal of Educational Psychology*, *103*(4), 857-876.

## 2010

Anthony, J. L., **Williams, J. M.**, Aghara, R., Dunkelberger, M., Novak, B., & Mukherjee, A. D. (2010). Assessment of individual differences in phonological representation. *Reading and Writing: An Interdisciplinary Journal*, *23*, 969-994.

## 2009

Anthony, J. L., Solari, E. J., **Williams, J. M.**, Schoger, K. D., Zhang, Z., Branum-Martin, L., & Francis, D. J. (2009). Development of bilingual phonological awareness in Spanish-speaking English language learners: The roles of vocabulary, letter knowledge, and prior phonological awareness. *Scientific Studies of Reading*, *13*, 535-564.

## 2007

Anthony, J. L., Assel, M. A., & **Williams, J. M.** (2007). Exploratory and confirmatory factor analysis of the DIAL-3: What does this “screener” really measure? *Journal of School Psychology*, *45*, 423-438.

Anthony, J. L., **Williams, J. M.**, McDonald, R., & Francis, D. J. (2007). Phonological processing and emergent literacy in younger and older preschool children. *Annals of Dyslexia*, *57*, 113-137.

## 2006

Anthony, J. L., **Williams, J. M.**, McDonald, R., Corbitt-Shindler, D., Carlson, C. D., & Francis, D. J. (2006). Phonological processing and emergent literacy in Spanish speaking preschool children. *Annals of Dyslexia*, *56*, 239-270.

## Edited chapters

2012

Landry, S. H., Zucker, T. A., Solari, E. J., Crawford, A., & **Williams, J. M.** (2012). History, scale-up, and improvements of a comprehensive, statewide professional development program in Texas. In C. Howes, B. K. Hamre, V. Pianta, & R. C. Pianta (Eds.) *Effective early childhood professional development: Improving teacher practice and child outcomes* (pp. 159-190). Baltimore, MD: Brookes.

## MANUSCRIPTS UNDER REVIEW

Davis, C., **Anthony, J. L.**, Williams, J. M., & Anthony, T. I. (2013). *Preschoolers' oral language abilities: A multilevel examination of dimensionality*. Manuscript submitted for publication.

Davis, C., **Anthony, J. L.**, Dunkelberger, M., Aghara, R., & Williams, J. (2013). *Development and validation of a brief assessment of preschoolers' articulation: The Houston Sentence Repetition Test of Articulation*. Manuscript submitted for publication.

Guttentag, C.L., Landry, S.H., Baggett, K.M., Noria, C.W., Borkowski, J.G., Swank, P.R., **Williams, J.M.**, Farris, J.R., Crawford, A., Lanzi, R.G., Carta, J.J., Warren, S.F., & Ramey, S.L. (2013). "My Baby & Me": Effects of an early, comprehensive parenting intervention on at-risk mothers and their children. Manuscript submitted for publication.

Piasta, S. B., Anthony, J. L., Phillips, B. M., **Williams, J. M.**, Bowles, R. P. (2013). Measuring young children's alphabet knowledge: Development and validation of brief letter-sound knowledge assessments using item response theory. Manuscript submitted for publication.

## MANUSCRIPTS IN PROGRESS (analyzed studies)

Crawford, A., **Williams, J. M.** (2013). The role of institutional setting in shaping children's early literacy experiences. Manuscript in progress.

**Williams, J. M.**, Anthony, J. L., Clements, (2013). *Evaluation of the computer-administered Building Blocks program*. Manuscript in preparation.

**Tricia A. Zucker**  
Curriculum Vitae

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University of Texas Health Science Center–Houston  
Address: 7000 Fannin St., 2300, Houston, TX 77030  
Phone: 713-500-3741  
Email: [tricia.zucker@uth.tmc.edu](mailto:tricia.zucker@uth.tmc.edu)

**Education**

- 2009 Ph.D. University of Virginia, Reading Education  
2006 M.Ed. University of Virginia, Reading Education  
2002 B.B.A Southern Methodist University, Business Administration

**Professional Experience**

- 2010-present **Assistant Professor**, Children’s Learning Institute, Department of Pediatrics,  
University of Texas Health Science Center, Houston, TX  
2009-2010 **Post-Doctoral Fellow/Research Coordinator II**, Children’s Learning Institute,  
Department of Pediatrics,  
University of Texas Health Science Center, Houston, TX  
2007-2008 **Research Coordinator I/Classroom Mentor**, Children’s Learning Institute,  
Department of Pediatrics,  
University of Texas Health Science Center, Houston, TX  
2006-2007 **Graduate Research Assistant**, Preschool Language and Literacy Lab  
University of Virginia, Charlottesville, VA  
2005-2007 **Graduate Reading Clinician**, McGuffey Reading Center  
University of Virginia, Charlottesville, VA  
2005-2006 **Graduate Research Assistant**, Reading First in Virginia  
University of Virginia, Charlottesville, VA  
2005-2005 **Graduate Assistant**, America Reads Challenge (Joint Coordinator)  
University of Virginia, Charlottesville, VA  
2002-2004 **Teach For America Corps Member**, Houston TX

**Honors & Awards**

- 2007-2008 **Doctoral Research Award in Education Science**, Center for Advanced  
Study of Teaching and Learning, University of Virginia  
2006-2008 **Curry Foundation Student Travel Awards**, University of Virginia  
2006-2008 **Doctoral Fellowship**, Curry School of Education Department of Curriculum,  
Instruction, and Special Education, University of Virginia  
2004 **Finalist Sue Lehmann Award for Excellence in Teaching**, Teach For  
America, Houston, TX  
2002-2003 **Teacher of the Year Award** (EC-4, First Year Teachers), Houston  
Independent School  
1998-2002 **Hunt Leadership Scholar** (full tuition scholarship and leadership program),  
Southern Methodist University

**Publications – Peer-reviewed manuscripts**

Crawford, A., Zucker, T. A., Williams, J. M., Landry, S. H. & Bhavsar, V. (in press). Initial

validation of the pre-kindergarten Classroom Observation Tool (COT) and goal setting system for data-based coaching. *School Psychology Quarterly*.

Landry, S. H., Zucker, T. A., Taylor, H. B., Swank, P. R., Williams, J. M., Assel, M., Crawford, A., Huang, W., Clancy-Menchetti, J., Lonigan, C. J., Phillips, B. M., Eisenberg, N., Spinrad, T. L., de Villiers, J., de Villiers, P. Barnes, M., Starkey, P., & Klein, A. and the School Readiness Consortium. (2013, online first publication). Enhancing early child care quality and learning for toddlers at risk: The responsive early childhood program. *Developmental Psychology*. doi: [10.1037/a0033494](https://doi.org/10.1037/a0033494)

Tompkins, V., Zucker, T. A., Justice, L. M., & Binici, S. (2013, online first publication). Inferential talk during teacher-child interactions in small-group play. *Early Childhood Research Quarterly*. <http://dx.doi.org/10.1016/j.ecresq.2012.11.001>

Zucker, T. A., Solari, E. J., Landry, S. H., & Swank, P. R. (2013). Effects of a brief tiered language intervention for prekindergartners at risk. *Early Education & Development*, 24(3), 366-392. doi: 10.1080/10409289.2012.664763

Justice, L. M., Cabell, S. Q., McGinty, A., Zucker, T. A., & Piasta, S. (2013). Bi-directional dynamics underlie the complexity of talk in teacher-child play-based conversations in classrooms serving at-risk pupils. *Early Childhood Research Quarterly*, 28, 496-508. <http://dx.doi.org/10.1016/j.ecresq.2013.02.005>

Zucker, T. A., Cabell, S. Q., Justice, L. M., Pentimonti, J. M., & Kaderavek, J. N. (2012, online first publication). The role of frequent, interactive pre-k shared reading in the development of language and literacy skills. *Developmental Psychology*. doi: [10.1037/a0030347](https://doi.org/10.1037/a0030347)

McGinty, A. S., Justice, L. M., Zucker, T. A., Goss, C., & Skibbe, L. E. (2012). Shared-reading dynamics: Mother's question use and verbal participation of children with Specific Language Impairment (SLI). *Journal of Speech, Language, and Hearing Research*, 55, 1039-1052. Doi: 10.1044/1092-4388(2011/10-0298)

Pentimonti, J. M., Zucker, T. A., Justice, L. M., Petscher, Y., Piasta, S. B., & Kaderavek, J. N. (2012). A Standardized tool for assessing the quality of classroom-based shared reading: Systematic Assessment of Book Reading (SABR). *Early Childhood Research Quarterly*, 27, 512-528. doi: 10.1016/j.ecresq.2011.12.007.

Pentimonti, J., Zucker, T. A., & Justice, L. M. (2012). What are preschool teachers reading in their classrooms? *Reading Psychology*, 32, 197-236. Doi: 10.1080/02702711003604484

Landry, S. H., Smith, K. E., Swank, P. R., Zucker, T. A., Crawford, A., & Solari, E. J., (2012). The effects of a responsive parenting intervention on parent-child interactions during shared book reading. *Developmental Psychology*, 48, 969-986. doi: [10.1037/a0026400](https://doi.org/10.1037/a0026400)

Pentimonti, J. M., Zucker, T. A., Justice, L. M., & Kadaravek, J. N. (2010). Information text use in preschool classroom read alouds. *The Reading Teacher*, 63, 656-665.

Zucker, T. A., Justice, L. M., Piasta, S. B., & Kaderavek, J. (2010). Preschool teachers' literal and inferential questions and children's responses during whole-class shared reading. *Early Childhood Research Quarterly, 25*, 65-83.

Zucker, T. A., Moody, A. K., McKenna, M. C. (2009) The effects of electronic books on PK-5<sup>th</sup> grade students' literacy and language outcomes: A research synthesis. *Journal of Educational Computing Research, 40*, 47-87.

Zucker, T. A., Ward, A. E., & Justice, L. M. (2009). Print referencing during read alouds: A technique for increasing emergent readers' print knowledge. *The Reading Teacher, 63*, 62-72.

Zucker, T. A., Justice, L. M., & Piasta, S. B. (2009). Preschool teachers' verbal references to print during classroom-based, large-group shared reading. *Language, Speech, and Hearing Services in Schools, 40*, 376-392.

Cabell, S. Q., Justice, L. M., Zucker, T. A., & Kilday, C. (2009). Validity of teacher report for estimating the emergent literacy skills of at-risk preschoolers. *Language, Speech, and Hearing Services in Schools, 40*, 161-173.

Cabell, S. Q., & Justice, L. M., Zucker, T. A., McGinty, A. S. (2009). Emergent name-writing abilities of preschool-aged children with language impairment. *Language, Speech, and Hearing Services in Schools, 40*, 53-66.

Zucker, T. A., & Invernizzi, M. (2008). "My eSorts" and digital extensions of word study. *The Reading Teacher, 61*, 654-658.

Skibbe, L. E., Justice, L. M., Zucker, T. A., & McGinty, A. S. (2008). The relation between maternal literacy beliefs and practices to literacy outcomes for children with varying language abilities. *Early Education and Development, 19*, 68-88.

### **Publications – Manuscripts in review and preparation**

Solari, E. J., Zucker, T. A., & Landry, S. H. (2013). *Relative effects of a comprehensive versus reduced training for Head Start teachers who serve Spanish-speaking English language learners*. Manuscript in review.

Zucker, T. A., Williams, J. M., Assel, M., Landry, S. H., & Monsegue-Bailey, P. (2013). *Initial validation of a brief, pre-kindergarten science and engineering screening and progress monitoring measure*. Manuscript in preparation.

Zucker, T. A., Williams, J. M., & Solari, E. J. (2013). *Impact of multi-tiered curriculum and training on pre-kindergarten teacher's Spanish book reading practices and children's bilingual language outcomes*. Manuscript in preparation.

### **Publications – Chapters**

Zucker, T. A., Crawford, A., & Landry, S. H. (in press). Scaling Up Data-Based Mentoring in Pre-Kindergarten Classrooms. *Mentoring: Practices, potential challenges and benefits*. NOVA.

Curenton, S. M., Justice, L. M., Zucker, T. A., & McGinty, A. S. (in press). Language and literacy curriculum and instruction. In V. Buysse & E. Peisner-Feinberg (Eds), *The Handbook of RTI in Early Childhood*.

Landry, S. H., Zucker, T. A., Solari, E. J., Crawford, A., & Williams, J. M. (2012). History, scale-up, and improvements of a statewide professional development program in Texas. In R. C. Pianta, et al. (Eds). *Effective professional development in early childhood education* (pp. 159-190). Baltimore: Brookes.

### **Publications – Coding and measurement tools**

Zucker, T. A., Monsegue-Bailey, P., Assel, M., Williams, J., Landry, S. H. & Crawford, A. (2013). *Science and engineering subtest of the Center for Improving the Readiness of Children for Learning and Education (CIRCLE) Phonological Awareness, Language & Literacy System*. Houston, TX: University of Texas Health Science Center at Houston.

Crawford, A., Zucker, T. A., Reed, B., Aston, L., Tuynman, B., Monsegue-Bailey, P., Morgan, L., Waxley, T., Landry, S. H., & Solari, E. J. (2012). *Classroom Observation Tool*. Unpublished instrument, Department of Pediatrics, University of Texas Health Science Center at Houston, Houston, Texas.

Aston, L., Tuynman, B., Crawford, A., & Zucker, T. A. (2012). *Classroom Environment Checklist*. Unpublished instrument, Department of Pediatrics, University of Texas Health Science Center at Houston, Houston, Texas.

Justice, L. M., Zucker, T. A., & Sofka, A. (2010). *Systematic Assessment of Book Reading-Revised*. Columbus, OH: Preschool Language and Literacy Lab.

### **Publications – Curriculum Materials & Online Courses**

Zucker, T. A., White, M., Correa, E., Solari, E. J., & DeMello, A. (2013). *Effective instruction for pre-kindergarten English language learners*. Austin, TX: Project Share Texas Education Agency.

Crawford, A., Zucker, T.A., Monsegue-Bailey, P. & Waxley, T. (2012). *Effective Mentoring Strategies*. San Francisco, CA: eCIRCLE Early Education – Teachscape.

Zucker, T.A., Coffey, S., & Landry, S. H. (2010). *Preschool Response to Intervention*. San Francisco, CA: eCIRCLE Early Education – Teachscape.

Zucker, T. A., Cabell, S. Q., Solari, E. J. & Landry, S. H. (2010). *Developing Talkers: Pre-K curricular supplement to promote oral language*. Houston, TX: University of Texas Health Science Center at Houston.

Solari, E. J., Cruz, A. Q., Zucker, T. A. & Landry, S. H. (2010). *Hablemos Juntos: Suplemento curricular de pre-k para promover el lenguaje oral*. Houston, TX: University of Texas Health Science Center at Houston.

### **Presentations – Peer-reviewed**

Landry, S. H., Solari, E. J., Zucker, T. A., White, M. E., Correa, E., & DeMello, A. (2013, May). *Relative effects of a comprehensive versus reduced training for Head Start teachers who serve Spanish-speaking English language learners*. Poster presentation, Children's Learning Institute Bilingual Research Conference, Houston, TX.

Zucker, T. A., Solari, E. J., Landry, S. H., White, M. E., Correa, E., & DeMello, A. (2013, May). *Teacher's Spanish book reading practices and dual language learners' oral language skills before and after multi-tiered instructional supports*. Poster presentation, Children's Learning Institute Bilingual Research Conference, Houston, TX.

Zucker, T. A., Williams, J., Landry, S. H., & Solari, E. J. (2013, April). *What predicts vocabulary knowledge of pre-kindergarteners receiving explicit, Tier 2 instruction?* Paper presentation, Society for Research in Child Development Biennial meeting, Seattle, WA.

Zucker, T. A., Williams, J., Landry, S. H., & Solari, E. J. (2012, September). *Pre-Kindergarten Curriculum-Based Measures (CBM) to Monitor Depth of Target Word Learning from Tier 2 Instruction*. Poster presentation, 4<sup>th</sup> Annual Response to Intervention Early Childhood Summit. Santa Ana Pueblo, NM.

Zucker, T. A., Pentimonti, J., Cabell, S. Q., & Justice, L. M. (2011, July). *The Systematic Assessment of Book Reading (SABR): A methodological shift in assessing classroom-based shared reading*. Paper presentation, annual Society for the Scientific Studies of Reading, St. Pete, FL.

Solari, E. J., Cabell, S. Q., & Zucker, T. A. (2011, February). *ELL pre-k children's name writing development: Relations with instructional practices*. Poster presentation, annual Pacific Coast Research Conference meeting, Coronado, CA.

### **Licensures**

**Virginia Postgraduate Professional License**, Reading Specialist, Elementary Education PreK-6

**Virginia Collegiate Professional License**, Elementary Education PreK-6

**Texas Classroom Teaching Certificate**, Early Childhood-4; Gifted and Talented Certification

### **Professional Memberships**

2005- Member, International Reading Association (IRA)  
2007- Member, Society for the Scientific Studies of Reading (SSSR)  
2008- Member, Society for Research in Child Development (SRCDD)  
2010- Member, Pacific Coast Research Conference (PCRC)

# **Christine Burkhardt McCormick, M.P.A.**

(b)(6)

## **SPECIALTIES**

Extensive experience with statewide public safety and justice programs

- Program Planning, Development, and Implementation
- Grants Administration
- Process Improvement
- Performance Measurement
- Program Evaluation

## **EDUCATION**

- **Master of Public Administration**, Texas State University (1999)
- **Bachelor of Arts, Liberal Arts**, University of Texas at Austin (1990)

## **HONORS AND AWARDS**

- **James W. McGrew Graduate Research Award**, American Society of Public Administration, Centex Chapter (2000)
- **Pi Alpha Alpha National Honor Society** for Public Administration (1998)

## **EMPLOYMENT**

### **Texas Education Agency (2010-present)**

#### **Grant Manager**

Manage \$300 million in discretionary and formula state and federal grant programs; implement strategies to prevent lapsing of funds; develop grant application documents; and oversee the setup and closeout of funds in the financial accounting system. Prepare for state and federal audits; work closely with monitoring staff on high risk grants; provide excellent customer service to staff, grantees, and the general public.

### **Texas Youth Commission (2007-2010)**

#### **Program Specialist VI**

Developed and executed strategic solutions to support the agency's mission including the agency's biennial strategic plan and interagency coordinated strategic plans for juvenile crime prevention. Responded to legislative requests, public inquiries, and preparing materials for legislative session.

#### **Director of Research & Planning**

Administered the overall activities of the Research & Planning Department; produced agency performance measure results; developed and executed strategic solutions for programs and operations; completed applications for state and federal grant funds; developed and managed agency-wide operational improvement projects.

### **Texas Office of the Governor (2003-2007)**

#### **Deputy Director Statistical Analysis Center**

Aligned federal grant applications to meet defined strategies; negotiated and managed contracts; analyzed criminal justice data for planning and allocations; managed contracts for correction population projections; developed operating plans.

## **Christine Burkhardt McCormick, M.P.A.**

(b)(6)

### **Director of Strategic Planning, Criminal Justice Division**

Developed and implemented statewide strategies for federal and state funding initiatives and led strategic planning for governor-appointed boards. Designed and implemented a standardized performance measurement and evaluation across all grant programs.

### **Travis County Health and Human Services (2000-2003)**

#### **Senior Planner/Contractor**

Wrote literature reviews, analyzed data, conducted needs assessments, and developed strategic plans.

### **Travis County Criminal Justice Planning (1997-1999)**

#### **Evaluation Manager**

Conducted a comprehensive process and outcome evaluation of intervention programs at the Travis County Community Justice Center (state jail).

### **Texas Department of Criminal Justice (1994-1997)**

#### **Research Specialist**

Responsible for research design, data collection, data analysis, performance measurements, and report writing for state grant-funded programs; supervised the collection and analysis of monthly community population reports; and led teams conducting program performance audits.

### **Texas Criminal Justice Policy Council (1991-1994)**

#### **Research Assistant**

Assisted in the administration of US Department of Justice grant funds for criminal history records improvement and the development of the state's Criminal Justice Information System. Developed federal grant applications; reviewed sub-grant applications; wrote multi-year plans; and completed progress reports.



UNITED STATES DEPARTMENT OF EDUCATION  
OFFICE OF THE CHIEF FINANCIAL OFFICER

Ms. Shirley Beaulieu  
Associate Commissioner for Finance / CFO  
Texas Education Agency  
1701 North Congress Avenue  
Austin, TX 78701-1494

Reference: Agreement No. 2012-220

Dear Ms. Beaulieu:

The original and one copy of the Indirect Cost Rate Agreement are enclosed. These documents reflect an understanding reached by your organization and the U.S. Department of Education. The rates agreed upon should be used for computing indirect cost grants, contracts and applications funded by this Department and other Federal Agencies.

After reviewing the Rate Agreement, please confirm acceptance by having the original signed by a duly authorized representative of your organization and returned within thirty (30) calendar days from the date of this letter to:

U.S. Department of Education  
OCFO / FIPAO / ICG  
Attention: Nelda Barnes, Rm. 6044  
550 12th Street, SW  
Washington, DC 20202-4450

The enclosed copy of this agreement should be retained for your files. If there are any questions, please contact Nelda Barnes at (202) 245-8005 or [Nelda.Barnes@ed.gov](mailto:Nelda.Barnes@ed.gov).

The next indirect cost rate proposal based on actual data for the year ended August 31, 2012 was due by February 28, 2013. This proposal should be sent to the above address.

Sincerely,  
(b)(6)

[Redacted Signature]

Mary Gougisha  
Director, Indirect Cost Group  
Financial Improvement and Post Audit Operations

Enclosures

INDIRECT COST RATE AGREEMENT  
STATE EDUCATION AGENCY

**Organization**

Texas Education Agency  
1701 North Congress Avenue  
Austin, TX 78701-1494

**Date:**

**Agreement No:** 2012-220

**Filing Reference:** Replaces previous  
Agreement No. 2011-182(B)

**Dated:** 1/10/2013

The approved indirect cost rates herein are for use on grants, contracts, and other agreements with the Federal Government. The rates are subject to the conditions included in Section II of this Agreement and issued by the U.S. Department of Education pursuant to the authority in Attachment A of Office of Management and Budget Circular A-87.

**Section I - Rates and Bases**

<u>Type</u>	<u>From</u>	<u>To</u>	<u>Rate</u>	<u>Base</u>	<u>Applicable To</u>
Fixed	09/01/2012	08/31/2013	11.7%	MTDC	APwR

Distribution Base:

MTDC      Modified Total Direct Cost - Total direct costs excluding equipment, capital expenditures, participant support costs, pass-through funds and the portion of each subaward (subcontract or subgrant) above \$25,000 (each award; each year).

Applicable To:

APwR      The rates herein are applicable to All Programs including those that require a restricted rate per 34 CFR 75.563 and 34 CFR 76.563.

Treatment of Fringe Benefits:

Fringe benefits applicable to direct salaries and wages are treated as direct costs, however, pursuant to OMB Circular A-87-Attachment B Paragraph 8.d.(3), terminal leave costs for all employees will be allocated as an indirect cost except for those employee salaries designated as a direct cost for the restricted rate calculation.

Capitalization Policy: Items of equipment are capitalized and depreciated if the initial acquisition cost is equal to or greater than \$5,000.

## **Section II – Particulars**

**Limitations:** Application of the rates contained in this Agreement is subject to all statutory or administrative limitations on the use of funds, and payments of costs hereunder are subject to the availability of appropriations applicable to a given grant or contract. Acceptance of the rates agreed to herein is predicated on the following conditions: (A) that no costs other than those incurred by the Organization were included in the indirect cost pools as finally accepted, and that such costs are legal obligations of the Organization and allowable under the governing cost principles; (B) the same costs that have been treated as indirect costs are not claimed as direct costs; (C) that similar types of information which are provided by the Organization, and which were used as a basis for acceptance of rates agreed to herein, are not subsequently found to be materially incomplete or inaccurate; and (D) that similar types of costs have been accorded consistent accounting treatment.

**Accounting Changes:** The rates contained in this agreement are based on the organizational structure and the accounting systems in effect at the time the proposal was submitted. Changes in organizational structure or changes in the method of accounting for costs which affect the amount of reimbursement resulting from use of the rates in this agreement, require the prior approval of the responsible negotiation agency. Failure to obtain such approval may result in subsequent audit disallowance.

**Provisional/Final/Predetermined Rates:** A proposal to establish a final rate must be submitted. The awarding office should be notified if the final rate is different from the provisional rate so that appropriate adjustments to billings and charges may be made. Predetermined rates are not subject to adjustment.

**Fixed Rate:** The negotiated fixed rate is based on an estimate of the costs that will be incurred during the period to which the rate applies. When the actual costs for such period have been determined, an adjustment will be made to a subsequent rate calculation to compensate for the difference between the costs used to establish the fixed rate and the actual costs.

**Notification to Other Federal Agencies:** Copies of this document may be provided to other Federal agencies as a means of notifying them of the agreement contained herein.

**Audit:** All costs (direct and indirect, federal and non-federal) are subject to audit. Adjustments to amounts resulting from audit of the cost allocation plan or indirect cost rate proposal upon which the negotiation of this agreement was based may be compensated for in a subsequent negotiation.

**Reimbursement Ceilings/Limitations on Rates:** Awards that include ceiling provisions and statutory/regulatory requirements on indirect cost rates or reimbursement amounts are subject to the stipulations in the grant or contract agreements. If a ceiling is higher than the negotiated rate in Section I of this agreement, the negotiated rate will be used to determine the maximum allowable indirect cost.

**Section III - Special Remarks**

Alternative Reimbursement Methods: If any federal programs are reimbursing indirect costs by a methodology other than the approved rates in this agreement, such costs should be credited to the programs and the approved rates should be used to identify the maximum amount of indirect costs allocable.

Submission of Proposals: New indirect cost proposals are necessary to obtain approved indirect cost rates for future fiscal years. **The next indirect cost rate proposal is due six months prior to the expiration dates of the rates in this agreement.**

**Section IV - Approvals**

For the State Education Agency:

Texas Education Agency  
1701 North Congress Avenue  
Austin, TX 78701-1494

For the Federal Government:

U.S. Department of Education  
OCFO / FIPAO / ICG  
550 12th Street, SW  
Washington, DC 20202-4450

(b)(6)

Signature

*Shirley Beaulieu*

Name

*CFO*

Title

*4-9-13*

Date

Signature

*Mary Gougisha*

Name

*Director, Indirect Cost Group*

Title

Date

Negotiator: Nelda Barnes  
Telephone Number: (202) 245-8005

## Budget Narrative File(s)

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\* **Mandatory Budget Narrative Filename:**

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To add more Budget Narrative attachments, please use the attachment buttons below.

**Budget Narrative  
Texas Education Agency**

Four Year Project Period: 12/01/2013 to 11/30/2017

<b>Year 1</b>	
<b>12/01/2013-11/30/2014</b>	<b>Total</b>
<b>Personnel</b>	
Program Specialist (25%)	\$22,690
Fringe @ 27%	\$6,126
Other Expenses	\$54
<b>Total Personnel Costs</b>	<b>\$28,870</b>
Indirect Costs (11.7%)	\$3,378
<b>Total Project Costs</b>	<b>\$32,248</b>

<b>Year 2</b>	
<b>12/01/2014-11/30/2015</b>	<b>Total</b>
<b>Personnel</b>	
Program Specialist (25%)	\$22,690
Fringe @ 27%	\$6,126
Other Expenses	\$54
<b>Total Personnel Costs</b>	<b>\$28,870</b>
Indirect Costs (11.7%)	\$3,378
<b>Total Project Costs</b>	<b>\$32,248</b>

<b>Year 3</b>	
<b>12/01/2015-11/30/2016</b>	<b>Total</b>
<b>Personnel</b>	
Program Specialist (25%)	\$22,690
Fringe @ 27%	\$6,126
Other Expenses	\$54
<b>Total Personnel Costs</b>	<b>\$28,870</b>
Indirect Costs (11.7%)	\$3,378
<b>Total Project Costs</b>	<b>\$32,248</b>

<b>Year 4</b>	
<b>12/01/2016-11/30/2017</b>	<b>Total</b>
<b>Personnel</b>	
Program Specialist (25%)	\$22,690
Fringe @ 27%	\$6,126
Other Expenses	\$54
<b>Total Personnel Costs</b>	<b>\$28,870</b>
Indirect Costs (11.7%)	\$3,378
<b>Total Project Costs</b>	<b>\$32,248</b>

## Budget Narrative

### **Personnel:**

Personnel effort and expensive charted to this project will be for services specific to the project.

**Program Specialist VII (25% FTE) Christine McCormick,** will be responsible for the coordination between Texas Education Agency leadership and departments and the Children's Literacy Institute (CLI). This position will collaborate with the CLI staff and provide content expertise on the development of the assessments and provide input and feedback on the assessment framework and system.

### **Other Direct Costs:**

**Phone Services:** Funds (\$54 per year) are requested to cover the costs of phone services for the personnel assigned to the grant.

### **Indirect Costs:**

Indirect costs are calculated at 11.7% rate

## BUDGET NARRATIVE

University of Texas Health Science Center at Houston

Four Year Project Period: 12/01/2013 to 11/30/2017

### Year 1

12/01/2013 – 11/30/2014	Total
<b>Personnel</b>	
Principal Investigator	\$17,507
Other Key Personnel	\$204,351
Other Personnel and Support Staff	\$277,943
Fringe Benefits ( <i>vary from 15% - 29%</i> )	\$127,877
Total Personnel Cost ( <i>Salary &amp; Fringe</i> )	\$629,563
<b>Supplies</b>	\$8,900
<b>Travel (Domestic)</b>	\$9,260
<b>Other Expenses</b>	\$42,650
<b>Indirect Costs (15%)</b>	\$103,169
<b>Total Project Costs</b>	\$790,959

### Year 2

12/10/2014 – 11/30/2015	Total
<b>Personnel</b>	
Principal Investigator	\$18,032
Other Key Personnel	\$178,997
Other Personnel and Support Staff	\$460,943
Fringe Benefits ( <i>vary from 15% - 29%</i> )	\$172,633
Total Personnel Cost ( <i>Salary &amp; Fringe</i> )	\$830,605
<b>Equipment</b>	\$40,000
<b>Supplies</b>	\$14,400
<b>Travel (Domestic)</b>	\$40,340
<b>Other Expenses</b>	\$28,800
<b>Indirect Costs (15%)</b>	\$137,122
<b>Total Project Costs</b>	\$1,091,267

**Year 3**

<b>12/01/2015 – 11/30/2016</b>	<b>Total</b>
<b>Personnel</b>	
Principal Investigator	\$18,573
Other Key Personnel	\$154,831
Other Personnel and Support Staff	\$513,613
Fringe Benefits ( <i>vary from 15% - 37%</i> )	\$171,993
Total Personnel Cost ( <i>Salary &amp; Fringe</i> )	\$859,010
<b>Supplies</b>	\$22,925
<b>Travel (Domestic)</b>	\$59,040
<b>Other Expenses</b>	\$46,800
<b>Indirect Costs (15%)</b>	\$148,016
<b>Total Project Costs</b>	\$1,135,942

**Year 4**

<b>12/01/2016 – 11/30/2017</b>	<b>Total</b>
<b>Personnel</b>	
Principal Investigator	\$19,131
Other Key Personnel	\$159,476
Other Personnel and Support Staff	\$324,681
Fringe Benefits ( <i>vary from 15% - 29%</i> )	\$128,251
Total Personnel Cost ( <i>Salary &amp; Fringe</i> )	\$631,538
<b>Supplies</b>	\$6,175
<b>Travel (Domestic)</b>	\$39,260
<b>Other Expenses</b>	\$54,300
<b>Indirect Costs (15%)</b>	\$109,691
<b>Total Project Costs</b>	\$840,964

## Budget Narrative

### Personnel:

All personnel effort and expenses charged to this project will be for services specific to the project and not for the general support of the research staff. Annual increases are estimated at 3% for all personnel.

### Key Personnel

Dr. Susan Landry, Principal Investigator, will be responsible for developing and overseeing the project's strategic vision and work closely with the project director, consultants, and other stakeholders on the development of the proposed assessments.

*Base Salary: \$350,144*

Year 1: at 5% FTE or 0.60CM, Salary - \$17,507, Fringe @ 15% - \$2,626

Year 2: at 5% FTE or 0.60CM, Salary - \$18,032, Fringe @ 15% - \$2,705

Year 3: at 5% FTE or 0.60CM, Salary - \$18,573, Fringe @ 15% - \$2,786

Year 4: at 5% FTE or 0.60CM, Salary - \$19,131, Fringe @ 15% - \$2,870

Dr. Jason Anthony, Co-PI and Project Director, will be responsible for the day-to-day management of the project's services and activities and ensure goals and objectives are attained in an effective and efficient manner. Dr. Anthony will provide direction and oversight to project staff and will coordinate the development of sub-teams geared to towards the development of domain-specific assessments.

*Base Salary: \$152,838*

Year 1: at 60% FTE or 7.20CM, Salary - \$91,703, Fringe @ 19% - \$17,424

Year 2: at 40% FTE or 4.80CM, Salary - \$62,969, Fringe @ 19% - \$11,964

Year 3: at 40% FTE or 4.80CM, Salary - \$64,858, Fringe @ 19% - \$12,323

Year 4: at 40% FTE or 4.80CM, Salary - \$66,804, Fringe @ 19% - \$12,693

Dr. Michael Assel, Co-PI, will be responsible for providing expertise in a variety of assessment domains, both in terms of assessment development, testing, and evaluation, and will work closely with other experts and consultants.

*Base Salary: \$130,078*

Year 1: at 25% FTE or 3.00CM, Salary - \$32,520, Fringe @ 24% - \$7,805

Year 2: at 25% FTE or 3.00CM, Salary - \$33,495, Fringe @ 24% - \$8,039

Year 3: at 10% FTE or 1.20CM, Salary - \$13,800, Fringe @ 24% - \$3,312

Year 4: at 10% FTE or 1.20CM, Salary - \$14,214, Fringe @ 24% - \$3,411

Dr. John Gasko, Co-PI, will be responsible for working with state agency leadership and key organizations throughout the state on promoting awareness and buy-in for the assessment development and implementation plan. Dr. Gasko will also build and sustain relationships, in collaboration with the TEA, with key school district stakeholders across Texas. He will provide direct support to the project PI and director especially as it pertains to risk management and communications/outreach.

*Base Salary: \$149,844*

Year 1: at 10% FTE or 1.20CM, Salary - \$14,984, Fringe @ 24% - \$3,596  
Year 2: at 10% FTE or 1.20CM, Salary - \$15,434, Fringe @ 19% - \$2,932  
Year 3: at 10% FTE or 1.20CM, Salary - \$15,897, Fringe @ 19% - \$3,020  
Year 4: at 10% FTE or 1.20CM, Salary - \$16,374, Fringe @ 19% - \$3,111

Dr. Heather Taylor, Co-PI, will be responsible for providing expertise in the domain of special needs, both in terms of assessment development, testing, and evaluation, and will work closely with other experts and consultants.

*Base Salary: \$112,000*

Year 1: at 4% FTE or 0.48CM, Salary - \$4,480, Fringe @ 24% - \$1,075  
Year 2: at 4% FTE or 0.48CM, Salary - \$4,614, Fringe @ 24% - \$1,107

Dr. Jeff Williams, Co-PI, will be responsible for collaborating with the information technology leadership at TEA and the project director to ensure that the technological components of the grant are managed and implemented efficiently and effectively. Dr. Williams will also be responsible for leading all statistical analysis efforts on the project.

*Base Salary: \$91,446*

Year 1: at 25% FTE or 3.00CM, Salary - \$22,862, Fringe @ 24% - \$5,487  
Year 2: at 25% FTE or 3.00CM, Salary - \$23,547, Fringe @ 24% - \$5,651  
Year 3: at 35% FTE or 4.20CM, Salary - \$33,955, Fringe @ 24% - \$8,149  
Year 4: at 35% FTE or 4.20CM, Salary - \$34,974, Fringe @ 24% - \$8,394

Dr. Tricia Zucker, Co-PI, will be responsible for will be responsible for providing expertise in a variety of assessment domains, both in terms of assessment development, testing, and evaluation, and will work closely with other experts and consultants. Dr. Zucker will also provide direct support to the project director as it pertains to the development of training and professional development.

*Base Salary: \$86,625*

Year 1: at 25% FTE or 3.00CM, Salary - \$21,656, Fringe @ 24% - \$5,198  
Year 2: at 25% FTE or 3.00CM, Salary - \$22,306, Fringe @ 24% - \$5,353  
Year 3: at 10% FTE or 1.20CM, Salary - \$9,190, Fringe @ 24% - \$2,206  
Year 4: at 10% FTE or 1.20CM, Salary - \$9,466, Fringe @ 24% - \$2,272

Dr. M. Sriram Iyengar, Co-PI, will oversee the technical team that will build and maintain the technology platform and architecture. He will work closely with project personnel to determine the technology and data needs of the project.

*Base Salary: \$107,646*

Year 1: at 15% FTE or 1.80CM, Salary - \$16,147, Fringe @ 24% - \$3,875  
Year 2: at 15% FTE or 1.80CM, Salary - \$16,631, Fringe @ 24% - \$3,992  
Year 3: at 15% FTE or 1.80CM, Salary - \$17,130, Fringe @ 24% - \$4,111  
Year 4: at 15% FTE or 1.80CM, Salary - \$17,644, Fringe @ 24% - \$4,235

### **Other Personnel**

TBN, Application Developers (3), will ensure compatibility of the technology application across platforms (e.g., Window, iOS, and Android). In addition, they will ensure that the application on

all platforms functions appropriately in all situations, such as with internet connectivity and offline.

*Base Salary: \$70,000*

Year 1: at 150% FTE or 18.00CM, Salary - \$105,000, Fringe @ 24% - \$25,200

Year 2: at 250% FTE or 30.00CM, Salary - \$180,250, Fringe @ 24% - \$43,260

Year 3: at 250% FTE or 30.00CM, Salary - \$185,658, Fringe @ 24% - \$44,558

Year 4: at 100% FTE or 12.00CM, Salary - \$76,491, Fringe @ 24% - \$18,358

TBN, Graduate Research Assistant, will assist Dr. Iyengar in designing and customizing the guideVue application to meet the needs of the project, including the assessment framework and architecture of the application.

*Base Salary: \$52,000*

Year 1: at 25% FTE or 3.00CM, Salary - \$13,000, Fringe @ 24% - \$3,120

Year 2: at 50% FTE or 6.00CM, Salary - \$26,780, Fringe @ 24% - \$6,427

Year 3: at 50% FTE or 6.00CM, Salary - \$27,583, Fringe @ 24% - \$6,620

Year 4: at 25% FTE or 3.00CM, Salary - \$14,205, Fringe @ 24% - \$3,409

TBN, Report Writer, will be responsible for designing and implementing the specific reports of students' data available in the application (e.g., classroom summary, student summary).

*Base Salary: \$70,000*

Year 1: at 0% FTE or 0CM, Salary - \$0, Fringe @ 24% - \$0

Year 2: at 50% FTE or 6.00CM, Salary - \$36,050, Fringe @ 24% - \$8,652

Year 3: at 50% FTE or 6.00CM, Salary - \$37,132, Fringe @ 24% - \$8,912

Year 4: at 50% FTE or 6.00CM, Salary - \$38,245, Fringe @ 24% - \$9,179

TBN, Technical Project Manager, will be responsible for coordinating work associated with technology vendors and supporting Dr. Iyengar.

*Base Salary: \$57,000*

Year 1: at 50% FTE or 6.00CM, Salary - \$28,500, Fringe @ 29% - \$8,265

Year 2: at 50% FTE or 6.00CM, Salary - \$29,355, Fringe @ 29% - \$8,513

Year 3: at 50% FTE or 6.00CM, Salary - \$30,236, Fringe @ 29% - \$8,768

Year 4: at 50% FTE or 6.00CM, Salary - \$31,143, Fringe @ 29% - \$9,031

Fiorella Cortes, Assessment Project Manager, will assist with recruitment of schools and children. Specifically, she will organize the gathering of commitment letters from school administrators in Year 1. She will also organize the gathering of child consent forms from teachers in Houston and around the state in Years 2, 3, and 4. This will involve scheduling of Research Assistants' travel, accommodations, and transportation to and within sites across Texas. She will correspond with administrative staff at schools and agencies to schedule testing of children. Ms. Cortes will also track completion of children's assessments, and be responsible for maintaining ample testing supplies.

*Base Salary: \$43,795*

Year 1: at 50% FTE or 6.00CM, Salary - \$21,898, Fringe @ 29% - \$6,350

Year 1: at 50% FTE or 6.00CM, Salary - \$22,555, Fringe @ 29% - \$6,541

Year 1: at 100% FTE or 12.00CM, Salary - \$46,463, Fringe @ 29% - \$13,474

Year 4: at 50% FTE or 6.00CM, Salary - \$23,928, Fringe @ 29% - \$6,939

TBN, Statistician, will be responsible for cleaning the data, and under the supervision of Dr. Williams, conduct all of the item analyses, exploratory analyses, and many of the item response theory analyses. During the validation phase, he/she will clean the data, and conduct the validation analyses.

*Base Salary: \$70,000*

Year 1: at 0% FTE or 0.00CM, Salary - \$0, Fringe @ 24% - \$0

Year 2: at 20% FTE or 2.40CM, Salary - \$14,420, Fringe @ 24% - \$3,461

Year 3: at 60% FTE or 7.20CM, Salary - \$44,558, Fringe @ 24% - \$10,694

Year 4: at 70% FTE or 8.40CM, Salary - \$53,544, Fringe @ 24% - \$12,850

TBN, Communication Specialist, will be responsible for developing and coordinating effective communication and outreach. The Communications Manager will develop newsletters and coordinate webinars and other training opportunities as dictated by needs in the field. This position will work closely with the PI and Co-PIs to create and implement effective outreach strategies and troubleshoot problems as necessary

*Base Salary: \$46,600*

Year 1: at 10% FTE or 1.20CM, Salary - \$4,660, Fringe @ 29% - \$1,351

Year 2: at 10% FTE or 1.20CM, Salary - \$4,800, Fringe @ 29% - \$1,392

Year 3: at 10% FTE or 1.20CM, Salary - \$4,944, Fringe @ 29% - \$1,434

Year 4: at 10% FTE or 1.20CM, Salary - \$5,092, Fringe @ 29% - \$1,477

TBN, Item Coordinator and Quality Assurance Tester, will be responsible for gathering, naming, and organizing electronic files of clipart; drawings from the artist; sound files for directions, feedback, and stimuli; and sound effects.

*Base Salary: \$40,000*

Year 1: at 50% FTE or 6.00CM, Salary - \$20,000, Fringe @ 29% - \$5,800

Year 2: at 50% FTE or 6.00CM, Salary - \$20,600, Fringe @ 29% - \$5,974

Year 3: at 20% FTE or 2.40CM, Salary - \$8,487, Fringe @ 29% - \$2,461

TBN, Form Developer, will be responsible for responsible for the creation, scripting, and testing of teleforms that will be used in the field as protocols because they permit electronic data capture. Form development staff will be responsible for the exportation of data from the optical character recognition software into the relational databases.

*Base Salary: \$37,700*

Year 1: at 5% FTE or 0.60CM, Salary - \$1,885, Fringe @ 37% - \$697

Year 2: at 5% FTE or 0.60CM, Salary - \$1,942, Fringe @ 37% - \$718

Year 3: at 5% FTE or 0.60CM, Salary - \$2,000, Fringe @ 37% - \$740

Year 4: at 5% FTE or 0.60CM, Salary - \$2,060, Fringe @ 29% - \$597

TBN, Data Processing Staff, will be responsible for verifying scanned data using the optical character recognition software system. These individuals verify data that cannot be recognized via the OCR software. This process involves comparing electronic image files to original protocols in order to resolve data transcription errors.

*Base Salary: \$37,700*

Year 1: at 0% FTE or 0.00CM, Salary - \$0, Fringe @ 37% - \$0

Year 2: at 5% FTE or 0.60CM, Salary - \$1,942, Fringe @ 37% - \$718  
Year 3: at 5% FTE or 0.60CM, Salary - \$2,000 , Fringe @ 37% - \$740  
Year 4: at 5% FTE or 0.60CM, Salary - \$2,060, Fringe @ 29% - \$597

TBN, Research Assistants, will be responsible for writing test items in Year 1 under the direction of their team leader, one of the Co-PIs. In subsequent years, Research Assistants will serve as examiners for data collection that requires travel *outside* of Houston. As examiners, Research Assistants will be trained by Co-PIs in administration of TX-KEA and criterion measures. All Research Assistants will be fluent in English and Spanish and will have experience testing young children. These are important selection criteria because half of the participants will be native Spanish speaking ESL children. Most of the Research Assistants that the Children's Learning Institute employs are individuals with college or advanced degrees in education, special education, psychology, or speech-language pathology.

*Base Salary: \$30,000*

Year 1: at 160% FTE or 19.20CM, Salary - \$48,000, Fringe @ 37% - \$17,760  
Year 2: at 350% FTE or 42.00CM, Salary - \$106,800, Fringe @ 37% - \$39,516  
Year 3: at 300% FTE or 36.00CM, Salary - \$94,554, Fringe @ 37% - \$34,985  
Year 4: at 240% FTE or 28.80CM, Salary - \$77,912, Fringe @ 37% - \$28,828

TBN, Data Collectors, will serve as examiners for data collected *within* Houston. This will occur during the pilot, scaling, and validation studies. As examiners, Data Collectors will be trained by Co-PIs in the administration of TX-KEA subtests and criterion measures. All Data Collectors will be fluent in English and Spanish and will have experience testing young children. Most Data Collectors employed by the CLI hold college or advanced degrees.

*Base Salary: \$15,000*

Year 1: at 33% FTE or 4.00CM, Salary - \$5,000, Fringe @ 9% - \$450  
Year 2: at 0% FTE or 0.00CM, Salary - \$0, Fringe @ 9% - \$0  
Year 3: at 200% FTE or 24.00CM, Salary - \$30,000, Fringe @ 9% - \$2,700  
Year 4: at 0% FTE or 0.00CM, Salary - \$0, Fringe @ 9% - \$0

TBN, Sound Editor, will normalize, clean, cut, select, and remix sound files based on recordings of the voice actors. These sound files will be used to present directions, corrective feedback on practice items, and auditory stimuli on the various subtests of T-KEA. This person will also be responsible for locating, organizing, and selecting prerecorded, publically available sound files or sound files for purchase to use in presentation of positive reinforcements played after correct responses on practice trials and at the end of subtests on T-KEA.

*Base Salary: \$30,000*

Year 1: at 50% FTE or 6.00CM, Salary - \$15,000, Fringe @ 37% - \$5,550  
Year 2: at 50% FTE or 6.00CM, Salary - \$15,450, Fringe @ 37% - \$5,717

TBN, Artist, will create colored illustrations that serve as visual stimuli on many T-KEA subtests, e.g., English and Spanish versions of Listening Comprehension, Mathematics, Science, Emotional understanding, etc.

*Base Salary: \$30,000*

Year 1: at 50% FTE or 6.00CM, Salary - \$15,000, Fringe @ 37% - \$5,550  
Year 2: at 50% FTE or 6.00CM, Salary - \$15,450, Fringe @ 37% - \$5,717

Fringe benefit costs at UT Health Science Center at Houston (UT-HSCH) vary by employee and have been calculated based on historical data for the employee or position budgeted under this proposal. Actual costs for fringe benefits will be charged to the sponsored project at the time the cost is incurred, based on salary, selected benefits package, and other variables applicable to the individual employee.

UT-HSCH fringe tier rates: \$0 - \$39,999 @ 37%; \$40,000 - \$69,999 @ 29%; \$70,000 - \$149,999 @ 24%; \$150,000 - \$229,999 @ 19%; \$230,000 - \$499,000 @ 15%; \$500,000+ @ 10%.

### **Equipment**

Funds are requested in Year 2 for the purchase of a dedicated encrypted server and storage for database development and data analysis. Cost is estimated at \$40,000.

### **Travel**

Project personnel will travel to Austin to meet with TEA project leadership. Travel costs are estimated at \$530/trip, and include mileage, meals and lodging per diem, parking, etc., for two days/trip:

Year 1: 12 trips x \$530 = \$6,360  
Year 2: 12 trips x \$530 = \$6,360  
Year 3: 22 trips x \$530 = \$11,660  
Year 4: 22 trips x \$530 = \$11,660

Funds are also requested for the PI or a delegate to attend the national program meeting in Washington, DC. Costs include airfare, meals/lodging per diem, parking, and ground transportation and are estimated at \$1,600/year.

Mileage costs are included for data collectors to travel to various locations to perform assessments and gather data. Data collectors will use their personal vehicles, and mileage is charged at the UTHealth rate of \$0.565/mile.

Year 1: 2,300 miles x \$0.565 = \$1,300  
Year 2: 4,600 miles x \$0.565 = \$2,600  
Year 3: 10,620 miles x \$0.565 = \$6,000  
Year 4: 10,620 miles x \$0.565 = \$6,000

Data collection will also take place outside the Houston area (e.g., Dallas/Ft. Worth, El Paso, etc.) at distances too far to drive. Travel costs for out of town data collection are estimated at \$29,780 in Years 2 and 3, and include mileage, meals and lodging per diem, parking, etc., for two days/trip:

Travel funds are also requested for project personnel to attend and present at regional project dissemination and professional development sessions in Years 3 and 4 (more detail below in "Other Direct Costs". Travel costs are estimated at \$10,000 in Year 3, and \$20,000 in Year 4,

and include airfare/mileage, meals and lodging per diem, ground transportation, parking, etc., for two days/trip.

**Materials & Supplies:**

Funds (\$2400/year) are requested to cover costs of project-specific supplies, including paper/ink for producing training materials, data organization and storage (e.g., binders, filing, etc.).

Funds (\$6,000) are requested in Year 1 for the purchase of tablet computers (e.g., iPad) for use in administering assessments and gathering data.

Funds (\$500 Year 1, \$2,125 Year 2, \$2,925 Year 3, \$2,925 Year 4) are requested for Teacher Incentives to encourage their assistance with gathering consent forms. Teachers or classrooms would receive the incentive (budgeted at x per classroom) if they meet a minimum number of returned consents, regardless of whether or not the returned form provides parental consent for child participation.

Funds (\$12,000 Year 2, \$16,750 Year 3) are requested for the purchase of Assessment Kits. Each examiner will be provided with one rolling bag to house and transport assessment materials. Examiners are also provided sanitizing hand lotion, Kleenexes, stickers for children, and black no-smear gel pens that are necessary for recording children’s responses on scannable teleforms. Testing materials will also include the standardized assessments that will be used as part of the validity studies. In total, we plan to purchase 8 complete kits for assessors to use across phases 2-4 of the study:

Test	Quantity	Cost per test	Total	Shipping
Woodcock- Muñoz Language Survey-Revised Normative Update (WMLS-RNU) English	8	472	3,776	378
Woodcock- Muñoz Language Survey-Revised Normative Update (WMLS-RNU) Spanish	8	472	3,776	378
Batería III Woodcock-Muñoz	8	698	5,584	558
Woodcock-Johnson Tests of Academic Achievement	8	664	5,312	530
Test of Phonological Awareness Spanish	8	100	800	80
Comprehensive Test of Phonological Awareness-2	8	330	2,640	269
Test of Early Mathematics Ability-Third Edition	8	330	2,640	269
Materials for Social Emotional Assessment (estimated)	8	100	800	N/A
Assessment Bags and Assorted Supplies	8	120	960	N/A
			26,288	2,462

Funds (\$800/year in Years 3 and 4) are requested for Protocol Costs. These costs include negotiating for license fees to assess 400 children in years 3 and 4 of the project. License fees are estimated at 2 dollars per child to pay publishers for the privilege of using scanforms for data entry.

## **Other Direct Costs**

**Sound booth and recording equipment:** Funds (\$2,000 Years 1 and 2) are requested to cover the costs of renting a sound booth and equipment for recording of verbal directions, verbal feedback on practice items, and auditory stimuli.

**Software:** Funds (\$350 Year 1) are requested for the purchase of Adobe Audition sound editing software for batch processing, cleaning, and editing and audio recordings. Funds (\$400) are also requested in each year of the project for an Adobe Connect license for delivering online training and assessments.

**Artwork/Clipart:** Funds (\$1,000/year) are requested for subscriptions to websites for downloading and using clipart and for the purchase of individual pictures and clipart for use in training materials and presentations.

**Long distance/conference calls:** The project staff will communicate via phone with many entities across the state. Long distance will also cover monthly conference calls between TEA and UT-Houston. We have estimated telecommunication related expenses at \$2,400 per year in all 5 years.

**Shipping/Postage expenses:** The project site will respond to inquiries that may require postage and/or shipping fees. This cost has been estimated at \$3,000 in each year of the project. These funds will also cover the cost of mailing recruitment materials (e.g., postcards).

**Regional Project Dissemination and Professional Development:** Sessions will be held in metropolitan areas across Texas (e.g., Dallas/Fort Worth, Austin/San Antonio, El Paso) in Years 3 and 4 to present the assessment product and train users. Since most of these meetings are expected to be day-long we would arrange a working lunch to be provided as part of the room rental fee. Sessions will be presented by project key personnel. Costs include room rental, materials development and production, audio/visual costs, etc., and are estimated at \$24,000/year in Years 3 and 4.

**Software Maintenance and Technical Support:** These costs are estimated at \$15,000/year, and include the costs of software licensing and upgrades, server maintenance, upgrades and repairs, etc.

### **Consultant Services:**

Funds (\$2,000) are requested for a sound production specialist to supervise recording sessions and oversee the storage, organization, initial cleaning and normalization of sound files.

Funds are also requested to cover the cost of two voice actors (one Spanish-speaking, one English-speaking) who will provide voices for the audio files created to TX-KEA. Costs are estimated at \$6,000 (\$3,000/actor).

Content experts: Funds are requested to cover the consultant fees of content experts. Consultant fees are estimated at \$500/day, per UTHHealth policy.

*Clancy Blair, Ph.D., New York University (Year 1, 3 days, \$1,500):* Dr. Blair is a Professor in the Department of Applied Psychology at the Steinhardt School of Culture, Education, and Human Development at New York University. He is an international expert in the development of self-regulation in young children. His research includes the study of executive functions and how these skills are important for school readiness and early school achievement. His work has examined the integration of aspects of self-regulation with cognitive skills including math and literacy in Kindergarten. Dr. Blair will work closely with Dr. Landry in the development of the social-emotional components of the TX-KEA System.

*Judith Carta, Ph.D., University of Kansas (Year 1, 3 days, \$1,500):* Dr. Carta has considerable expertise in developing assessment systems that can be effective with children with special learning needs. She is one of the lead investigators on an IES funded project on Response to Intervention in Early Childhood that examines how assessment procedures in pre-k and K can inform teachers on how to use data to group children based on their learning needs so that those with more need get more targeted instruction. She will assist in the development of procedures that assure the proposed K assessment system is effective with children with special learning needs.

*Douglas Clements, Ph.D., University of Denver (Year 1, 3 days, \$1,500):* Dr. Clements has considerable expertise and experience in the area of mathematics. His research focuses on the development of curricula and professional development in early childhood and elementary contexts, and as such, he has participated in several national committees, including President Bush's National Math Advisory Panel and the NSF-funded Conference on Standards for Preschool and Kindergarten Mathematics Education. He is the co-author of the *Building Blocks* mathematics curriculum, *TRIAD*, an integrated mathematics curriculum and professional development system, and *Investigations in Number, Data, and Space*, a K-5 mathematics curriculum. Dr. Clements also has considerable experience with technological implementation of mathematics materials, including *Turtle Math* and *Shapes*, which will allow him to provide valuable expertise in the design of the technological aspects of the assessment.

*Karen Ford, Ph.D., University of Virginia (Year 1, 3 days, \$1,500):* Dr. Ford's research and expertise focuses on bilingual literacy assessment, curriculum and instruction as integrated components within systematic intervention approaches. She has particular expertise in Spanish/English dual language learners that is relevance to the population in Texas. As co-creator of the Spanish version of Virginia's statewide literacy assessment (i.e., PALS Español), she offers unique expertise in ensuring English and Spanish versions of assessments are comparable, but not simply translations. She also has experience in large-scale professional development and technical assistance to ensure the PALS Español data are appropriately utilized by teachers and administrators.

*Daryl Greenfield, Ph.D., University of Miami (Year 1, 3 days, \$1,500):* Dr. Greenfield has considerable content expertise in the domain of young children's science knowledge as well as appropriate assessment development. As the lead author of the Preschool Science Assessment

(PSA) and co-creator of the Early Childhood Hands on Science (ECHOS) curriculum, he will provide valuable input on subtests that measure science, technology, engineering and math (STEM) skills. In addition, Dr. Greenfield has expertise in appropriate methods for developing psychometrically sound direct assessments for use with young children. He has served on various evaluations of school readiness assessments that will allow him to provide useful feedback on the larger goals of the project.

*Marcia Invernizzi, Ph.D., University of Virginia (Year 1, 3 days, \$1,500):* Dr. Invernizzi's research and expertise focuses on literacy assessment, curriculum and instruction as integrated components within systematic intervention approaches. She is the co-creator of the assessment of the Virginia Early Intervention Reading Initiative that is used by 99% of schools in Virginia for universal literacy screening. This measure is called the Phonological Awareness Literacy Screening (PALS) that has been used since 1998. Her work with the PALS literacy screening will allow her to provide expertise in large-scale professional development related to teacher-administered assessments and technical assistance to ensure these data are appropriately utilized by teachers and administrators.

*Indiana Joseph, PT, DPT, Cole Pediatric Therapy (Year 1, 3 days, \$1,500):* Dr. Joseph, a pediatric physical therapist, will assist in the development of items and scoring procedures for an evaluation of gross and fine motor skills in children enrolled in Kindergarten.

*Ryan Bowles, Ph.D., Michigan State University (Year 3, 2 days, \$1,000; Year 4, 1 day, \$500):* Dr. Bowles is trained as a quantitative psychologist with a focus on measurement and longitudinal methods. He uses contemporary measurement methods to develop assessments for early childhood, including assessments of narrative skills, phonological awareness, behavioral self-regulation, and letter knowledge. The development of these assessments involves many of the same statistical approaches that will be used in the proposed project. He will serve as a statistical consultant in Years 3 and 4.

### **Indirect costs**

Indirect costs are calculated on a modified total direct costs basis using the TEA-limited rate of 15%.

**U.S. DEPARTMENT OF EDUCATION  
BUDGET INFORMATION  
NON-CONSTRUCTION PROGRAMS**

OMB Number: 1894-0008  
Expiration Date: 04/30/2014

Name of Institution/Organization

Texas Education Agency

Applicants requesting funding for only one year should complete the column under "Project Year 1." Applicants requesting funding for multi-year grants should complete all applicable columns. Please read all instructions before completing form.

**SECTION A - BUDGET SUMMARY  
U.S. DEPARTMENT OF EDUCATION FUNDS**

Budget Categories	Project Year 1 (a)	Project Year 2 (b)	Project Year 3 (c)	Project Year 4 (d)	Project Year 5 (e)	Total (f)
1. Personnel	22,690.00	22,690.00	22,690.00	22,690.00	0.00	90,760.00
2. Fringe Benefits	6,126.00	6,126.00	6,126.00	6,126.00	0.00	24,504.00
3. Travel	0.00	0.00	0.00	0.00	0.00	0.00
4. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
5. Supplies	0.00	0.00	0.00	0.00	0.00	0.00
6. Contractual	790,959.00	1,091,267.00	1,135,942.00	840,964.00	0.00	3,859,132.00
7. Construction	0.00	0.00	0.00	0.00	0.00	0.00
8. Other	54.00	54.00	54.00	54.00	0.00	216.00
9. Total Direct Costs (lines 1-8)	819,829.00	1,120,137.00	1,164,812.00	869,834.00	0.00	3,974,612.00
10. Indirect Costs*	3,378.00	3,378.00	3,378.00	3,378.00	0.00	13,512.00
11. Training Stipends	0.00	0.00	0.00	0.00	0.00	0.00
12. Total Costs (lines 9-11)	823,207.00	1,123,515.00	1,168,190.00	873,212.00	0.00	3,988,124.00

**\*Indirect Cost Information (To Be Completed by Your Business Office):**

If you are requesting reimbursement for indirect costs on line 10, please answer the following questions:

(1) Do you have an Indirect Cost Rate Agreement approved by the Federal government?  Yes  No

(2) If yes, please provide the following information:

Period Covered by the Indirect Cost Rate Agreement: From:  To:  (mm/dd/yyyy)

Approving Federal agency:  ED  Other (please specify):

The Indirect Cost Rate is  %.

(3) For Restricted Rate Programs (check one) -- Are you using a restricted indirect cost rate that:

Is included in your approved Indirect Cost Rate Agreement? or,  Complies with 34 CFR 76.564(c)(2)? The Restricted Indirect Cost Rate is  %.

Name of Institution/Organization Texas Education Agency	Applicants requesting funding for only one year should complete the column under "Project Year 1." Applicants requesting funding for multi-year grants should complete all applicable columns. Please read all instructions before completing form.	
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**SECTION B - BUDGET SUMMARY  
NON-FEDERAL FUNDS**

Budget Categories	Project Year 1 (a)	Project Year 2 (b)	Project Year 3 (c)	Project Year 4 (d)	Project Year 5 (e)	Total (f)
1. Personnel	0.00	0.00	0.00	0.00	0.00	0.00
2. Fringe Benefits	0.00	0.00	0.00	0.00	0.00	0.00
3. Travel	0.00	0.00	0.00	0.00	0.00	0.00
4. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
5. Supplies	0.00	0.00	0.00	0.00	0.00	0.00
6. Contractual	0.00	0.00	0.00	0.00	0.00	0.00
7. Construction	0.00	0.00	0.00	0.00	0.00	0.00
8. Other	0.00	0.00	0.00	0.00	0.00	0.00
9. Total Direct Costs (lines 1-8)	0.00	0.00	0.00	0.00	0.00	0.00
10. Indirect Costs	0.00	0.00	0.00	0.00	0.00	0.00
11. Training Stipends	0.00	0.00	0.00	0.00	0.00	0.00
12. Total Costs (lines 9-11)	0.00	0.00	0.00	0.00	0.00	0.00

**SECTION C - BUDGET NARRATIVE (see instructions)**

U.S. DEPARTMENT OF EDUCATION  
SUPPLEMENTAL INFORMATION  
FOR THE SF-424

OMB Number: 1894-0007  
Expiration Date: 07/31/2014

**1. Project Director:**

Prefix:	First Name:	Middle Name:	Last Name:	Suffix:
Ms.	Christine		McCormick	

Address:

Street1:	1701 N. Congress Avenue
Street2:	
City:	Austin
County:	
State:	TX: Texas
Zip Code:	78701-1494
Country:	USA: UNITED STATES

Phone Number (give area code)	Fax Number (give area code)
512-463-2334	

Email Address:

Christine.McCormick@tea.state.tx.us

**2. Novice Applicant:**

Are you a novice applicant as defined in the regulations in 34 CFR 75.225 (and included in the definitions page in the attached instructions)?

Yes  No  Not applicable to this program

**3. Human Subjects Research:**

a. Are any research activities involving human subjects planned at any time during the proposed project Period?

Yes  No

b. Are ALL the research activities proposed designated to be exempt from the regulations?

Yes Provide Exemption(s) #:

No Provide Assurance #, if available:

c. If applicable, please attach your "Exempt Research" or "Nonexempt Research" narrative to this form as indicated in the definitions page in the attached instructions.

<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
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