

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



APPLICATION FOR GRANTS
UNDER THE

Enhanced Assessment Instruments Grant Program

CFDA # 84.368A

PR/Award # S368A170003

Grants.gov Tracking#: GRANT12250702

OMB No. , Expiration Date:

Closing Date: Sep 22, 2016

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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.).

There were problems converting one or more of the attachments. These are: [1238-SCILLSS Letters of Commitment.pdf](#)

Application for Federal Assistance SF-424

* 1. Type of Submission: <input type="checkbox"/> Preapplication <input checked="" type="checkbox"/> Application <input type="checkbox"/> Changed/Corrected Application	* 2. Type of Application: <input checked="" type="checkbox"/> New <input type="checkbox"/> Continuation <input type="checkbox"/> Revision	* If Revision, select appropriate letter(s): <input type="text"/> * Other (Specify): <input type="text"/>
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* 3. Date Received: <input type="text" value="09/21/2016"/>	4. Applicant Identifier: <input type="text"/>
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5a. Federal Entity Identifier: <input type="text"/>	5b. Federal Award Identifier: <input type="text"/>
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State Use Only:

6. Date Received by State: <input type="text"/>	7. State Application Identifier: <input type="text"/>
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8. APPLICANT INFORMATION:

* a. Legal Name: <input type="text" value="Nebraska Department of Education"/>	
* b. Employer/Taxpayer Identification Number (EIN/TIN): <input type="text" value="470491233"/>	* c. Organizational DUNS: <input type="text" value="8088198820000"/>

d. Address:

* Street1:	<input type="text" value="301 Centennial Mall South"/>
Street2:	<input type="text" value="P.O. Box 94987"/>
* City:	<input type="text" value="Lincoln"/>
County/Parish:	<input type="text" value="Lancaster"/>
* State:	<input type="text" value="NE: Nebraska"/>
Province:	<input type="text"/>
* Country:	<input type="text" value="USA: UNITED STATES"/>
* Zip / Postal Code:	<input type="text" value="68509-4987"/>

e. Organizational Unit:

Department Name: <input type="text" value="Office of Statewide Assessment"/>	Division Name: <input type="text"/>
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f. Name and contact information of person to be contacted on matters involving this application:

Prefix: <input type="text" value="Dr."/>	* First Name: <input type="text" value="Valorie"/>
Middle Name: <input type="text"/>	
* Last Name: <input type="text" value="Foy"/>	
Suffix: <input type="text" value="Ed.D"/>	
Title: <input type="text" value="Director of Statewide Assessment"/>	

Organizational Affiliation: <input type="text" value="Nebraska Department of Education"/>
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* Telephone Number: <input type="text" value="402 471-2495"/>	Fax Number: <input type="text" value="402 742-2319"/>
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* Email: <input type="text" value="valorie.foy@nebraska.gov"/>
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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-080816-001

* Title:

Office of Elementary and Secondary Education (OESE): Enhanced Assessment Instruments Grant
Program: Enhanced Assessment Instruments CFDA Number 84.368A

13. Competition Identification Number:

84-368A2017-1

Title:

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

Add Attachment

Delete Attachment

View Attachment

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

Strengthening Claims-based Interpretations and Uses of Local and Large-scale Science Assessment Scores (SCILLSS)

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="3,987,394.86"/>
* 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="3,987,394.86"/>

*** 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:

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

OMB Number: 1894-0008
Expiration Date: 06/30/2017

Name of Institution/Organization

Nebraska Department of Education

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	61,000.00	61,700.00	63,560.00	65,470.00		251,730.00
2. Fringe Benefits	28,060.00	28,382.00	29,238.00	30,116.00		115,796.00
3. Travel	115,955.81	70,205.81	36,605.81	36,605.81		259,373.24
4. Equipment	25,500.00					25,500.00
5. Supplies	1,250.00	1,250.00	1,250.00	1,250.00		5,000.00
6. Contractual	909,305.87	922,463.08	815,588.83	527,326.20		3,174,683.98
7. Construction						
8. Other	19,401.94	44,401.94	14,401.94	14,401.94		92,607.76
9. Total Direct Costs (lines 1-8)	1,160,473.62	1,128,402.83	960,644.58	675,169.95		3,924,690.98
10. Indirect Costs*	20,934.00	13,512.30	13,919.70	14,337.90		62,703.90
11. Training Stipends						
12. Total Costs (lines 9-11)	1,181,407.62	1,141,915.13	974,564.28	689,507.85		3,987,394.88

***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: 07/01/2017 To: 06/30/2020 (mm/dd/yyyy)

Approving Federal agency: ED Other (please specify):

The Indirect Cost Rate is 15.00%.

(3) If this is your first Federal grant, and you do not have an approved indirect cost rate agreement, are not a State, Local government or Indian Tribe, and are not funded under a training rate program or a restricted rate program, do you want to use the de minimis rate of 10% of MTDC? Yes No If yes, you must comply with the requirements of 2 CFR § 200.414(f).

(4) If you do not have an approved indirect cost rate agreement, do you want to use the temporary rate of 10% of budgeted salaries and wages?
 Yes No If yes, you must submit a proposed indirect cost rate agreement within 90 days after the date your grant is awarded, as required by 34 CFR § 75.560.

(5) 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 15.00%.

PR/Award # S368A170003

Name of Institution/Organization Nebraska Department of Education	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						
2. Fringe Benefits						
3. Travel						
4. Equipment						
5. Supplies						
6. Contractual						
7. Construction						
8. Other						
9. Total Direct Costs (lines 1-8)						
10. Indirect Costs						
11. Training Stipends						
12. Total Costs (lines 9-11)						

SECTION C - BUDGET NARRATIVE (see instructions)

ED 524

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>Valorie Foy</p>	<p>TITLE</p> <p>Director of Statewide Assessment</p>
<p>APPLICANT ORGANIZATION</p> <p>Nebraska Department of Education</p>	<p>DATE SUBMITTED</p> <p>09/21/2016</p>

Standard Form 424B (Rev. 7-97) Back

NOTICE TO ALL APPLICANTS

OMB Number: 1894-0005
Expiration Date: 03/31/2017

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.

(4) An applicant that proposes a project to increase school safety might describe the special efforts it will take to address concern of lesbian, gay, bisexual, and transgender students, and efforts to reach out to and involve the families of LGBT students.

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 and reference the OMB Control Number 1894-0005.

Optional - You may attach 1 file to this page.

SCILLSS GEPA.pdf

Add Attachment

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GEPA Statement

Nebraska Department of Education Enhanced Assessment Grant Application
*Strengthening Claims-based Interpretations and Uses of Local and Large-scale Science
Assessment Scores (SCILLSS)*

With respect to the requirements of General Education Provisions Act, Section 427 (GEPA), the Nebraska Department of Education (NDE) along with project partners will take all steps necessary to ensure equitable access to and participation in the services provided through the project for **all** stakeholders, including state and local administrators, teachers, parents, and students. NDE and the project's state and organizational partners fully support Equal Employment Opportunity and Affirmative Action principles, practices, and programs, and do not discriminate among applicants or employees on the basis of gender, race, color, religion, gender, national origin, political affiliation, marital status, veteran status, or age. Applicants or employees capable of performing the duties of a position or job classification may not be discriminated against because of a physical or mental disability.

In addition, the partner states have strong beliefs about the value of inclusion of individuals with diversity and/or special needs in their educational programs. None discriminate in hiring or employment practices or in the delivery of education or other services. In order to ensure equitable access for all participants, as required by GEPA, NDE will address barriers to participation in five specific ways related to the proposed project.

Steps to Ensure Equitable Access

Step 1. Materials development Assessment materials produced by the proposed project will target students in the general education population, with a particular focus on ensuring the materials are accessible to all students including students with disabilities and English learners.

All materials developed through this project will be reviewed by participating states and national experts for bias/sensitivity and accessibility. In addition, materials developed through this project will be made available in multiple forms to accommodate accessibility needs. Thus, the project's development efforts will deliberately address equitable access and participation by **all** students.

Step 2. Modifications of materials Since the materials developed for the proposed project will be distributed to the partner states, state education agency staff and local educators will be collaborators in making the necessary adjustments to assessment tasks for students with particular accessibility needs. All materials produced through this project will be developed with accessibility in mind, and thus all will be adaptable to accommodate a diverse range of accessibility needs for students, educators, administrators, and parents.

Step 3. Accessibility and accommodations Every effort will be made to ensure full accessibility to meetings, project deliverables, communications, and other project activities. Special accommodations for participants with all types of disabilities, will be made so that educators and state personnel can fully participate. For example, face-to-face meetings will be held at venues that are fully accessible. This includes providing interpreters for staff, partners, and stakeholders who have a disability or limited English proficiency. In addition, all project tools and resources and relevant information will be made publicly available online via the project website, which will be in a format that meets a government or industry-recognized standard for accessibility.

Step 4. Diversity of project staff Diverse groups of people will be involved in developing project activities and in recruitment and retention of participants in the partner states.

People with minority status, whether based on gender, race, national origin, color, disability, or age, will be encouraged to participate. Training and professional development for personnel will be available to promote sensitivity and awareness to students with diverse learning needs and to create a supportive climate that fosters authentic engagement of participating teachers and other project stakeholders.

Step 5. Recruitment of participants Procedures will be in place to ensure equitable access to and participation by teachers and students from diverse groups that represent our state members' widely varying demographic and cultural profiles. Teachers and other stakeholders with minority status, whether based on gender, race, national origin, color, disability, or age will be encouraged to participate. Other unforeseen barriers to full access may be identified as the project gets underway, and NDE will address those barriers as they arise. Within contractual service agreements, NDE requires all entities to encourage applications from underrepresented groups and to identify strategies for doing so.

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.

* APPLICANT'S ORGANIZATION Nebraska Department of Education	
* PRINTED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE	
Prefix: Dr.	* First Name: Valorie Middle Name:
* Last Name: Foy	Suffix: Ed.D
* Title: Director of Statewide Assessment	
* SIGNATURE: Valorie Foy	* DATE: 09/21/2016

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

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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) #: 1 2 3 4 5 6

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.

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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.]

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SCILLSS Project Objectives and Activities In the Strengthening Claims-based

Interpretations and Uses of Local and Large-scale Science Assessments (SCILLSS) project, we propose to establish a foundation from which a broad range of enhanced science assessments that yield valid score interpretations can be built, evaluated, and shared across states, local education agencies, schools, and classrooms using a principled-design approach.

To address this objective, SCILLSS is organized into six phases. Phase 1 includes **project management** activities to ensure that the project is managed appropriately. Phase 2 includes **needs assessments** to gather important information about the status and characteristics of state and local assessment systems. Phase 3 involves the creation of a **validity evaluation framework** that can be tailored to specific assessment types and contexts. Phase 4 focuses on the **intra-assessment** examination of PLDs, task models, items, and blueprints and the creation of large-scale assessment design and development tools that target standards-based concepts and skills. Phase 5 involves the creation of **classroom-based evidence and tools** to support effective interpretations and uses of large-scale assessment results. Phase 6 involves **project evaluation and reporting** to evaluate states' progress, guide next steps, and provide useful reports.

Applicable Priorities Through the SCILLSS project, we propose to address each of the Secretary's four absolute priorities (APs) and three competitive preference priorities (CPPs). We address **AP1** (collaboration) by bringing together three states, three independent organizations, and an external evaluator to improve the quality of statewide assessment systems in science. To address **AP2** (multiple measures) we will establish a means for states to strengthen the meaning of statewide assessment results and to connect those results with local assessments in a complementary system. We will collect aggregated statewide assessment data and individual exemplars in a body of evidence that supports analysis of cross-sectional and within-student

progress, as emphasized in **AP3** (charting student progress over time). For **AP4** (comprehensive assessment instruments) we will build principled-design tools to guide educators through a replicable process aimed at strengthening their assessment systems in science.

SCILLSS will address **CPP1** (developing innovative assessment item types and design approaches) by using principled-design methodologies to evaluate current science assessment items and to develop task models for new innovative science items. We will address **CPP2** (improving assessment scoring and score reporting) by engaging state and local educators to clarify the intended interpretations and uses of assessment scores, and to create a repertoire of tools aimed at improving the utility of student performance results for all stakeholders. We will address **CPP3** (inventory of state and local assessment systems) by administering a needs assessment for each state to review their statewide and local assessments for quality, standards and instructional alignment, purpose, utility, and equity.

Proposed Project Outcomes A primary goal of SCILLSS is to leverage existing tools and expertise to generate more broadly applicable resources and to strengthen the knowledge base among stakeholders for using principled-design approaches to create and evaluate quality science assessments that generate meaningful and useful scores. The SCILLSS tools and resources will be designed to have applicability and use beyond the participating project states.

Number of Participants to be Served The SCILLSS project will involve key state and local education agency staff, approximately 120 educators, and a broad representation of students representing the three participating states (NE, MT, and WY), and will generate widely applicable tools and resources for use and dissemination beyond the participating states.

Number and Location of Proposed Sites Project activities will be conducted virtually as well as on-site at local school districts and state education agencies within the partner states.

Project Narrative File(s)

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4. Name and Address of Reporting Entity:
 Prime SubAwardee

* Name: Nebraska Department of Education

* Street 1: 301 Centennial Mall South * Street 2: P.O. Box 94987

* City: Lincoln * State: NE: Nebraska * Zip: 68509-4987

Congressional District, if known: NE-001

5. If Reporting Entity in No.4 is Subawardee, Enter Name and Address of Prime:

6. * Federal Department/Agency: United States Department of Education	7. * Federal Program Name/Description: Grants for Enhanced Assessment Instruments
	CFDA Number, if applicable: 84.368

8. Federal Action Number, if known: 	9. Award Amount, if known: \$
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10. a. Name and Address of Lobbying Registrant:

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* Signature: Valorie Foy

* Name: Prefix: Dr. * First Name: Valorie Middle Name: * Last Name: Foy Suffix: EdD

Title: Director of Statewide Assessment Telephone No.: 402 471-2495 Date: 09/21/2016

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*Strengthening Claims-based
Interpretations and Uses of Local and
Large-scale Science Assessment Scores
(SCILLSS)*

A proposal submitted in response to the Request for Proposals under the
Enhanced Assessment Grants Program, CFDA 84.368A

Project Narrative

**Submitted by the
Nebraska Department of Education**

September 20, 2016

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Chapter 1 – Need for the Project

In this era of intense scrutiny of many cultural institutions around issues of equity, opportunity, and excellence, our system of American public education simultaneously elicits both contempt and hope. Assessments can reveal uncomfortable disparities and also point to potentially productive paths forward. This duality manifests in an unstable approach to assessment, as if it were simultaneously a miracle panacea and the bane of instruction. Those in the field of educational measurement are exploring many ways to improve the assessment experience for students and teachers, such as through the design and use of innovative and technology-enhanced item formats and sophisticated mechanisms for quickly and accurately scoring student responses to constructed-response tasks. In the project we describe below, we hope to support that type of work and other means of re-envisioning educational assessment as a worthwhile and welcome component of effective and engaging classroom culture. We wish to provide a firm foundation on which a broad range of enhanced assessments that yield valid score interpretations can be built, evaluated, and shared across states, local education agencies (LEAs), schools, and classrooms. Our aim is coherence in these systems both internally and as they relate to the contexts in which they are used. What follows are the why and the how of our approach to doing so as it relates to the needs of our partner states and those around the country.

Relevance to States' Needs

Our proposed project is designed to benefit states by establishing a framework, a set of tools, and both generalizable and tailored outcomes that contribute to the meaning and usefulness of academic achievement assessment scores. Although this project has deep roots in well-grounded conceptualizations of assessment design, validity evaluation, and education policy and practice, it is extremely timely given the context of the new reauthorization of the *Elementary*

and Secondary Education Act of 1965 (ESEA), known as the *Every Student Succeeds Act of 2015 (ESSA)* and the unprecedented opt-out and testing time reduction movements in a number of US states and further localized in districts and schools. By shifting more discretion and responsibility for state assessment and accountability systems to the states themselves, ESSA could reinvigorate states' explorations of how best to articulate college- and career-ready (CCR) goals for students and education systems and how best to measure progress toward those goals.

At the same time, states are facing palpable opposition to testing that has manifested with increased media attention on parents opting their children out of state test participation and calls for reducing and limiting the amount of time allowed for testing (Bennett, 2016; Harris, 2015a; Harris, 2015b; Lazarin, 2014; Postal, 2015). These efforts to constrain testing have, in some cases, been spurred by widespread disapproval of the use of student assessment scores to evaluate educators and concerns that assessments detract disproportionately from instructional time (Bennett, 2016). While the former may become less problematic in the era of ESSA, the latter belief may be gaining ground even though a number of studies have demonstrated that assessments actually take up a very small portion of class time and local assessments involve significantly more student time than state assessments do (Council of Great City Schools, 2015; Phi Delta Kappa & Gallup, 2015; Lazarin, 2014; Teoh, Coggins, Guan, & Hiler, 2014; Rogers & Mirra, 2014). Both larger concerns share a common root of perception: that large-scale assessments do not yield information that is worth their time and money costs.

Unfortunately, there is at least a kernel of truth in this perspective. Despite investments in assessment literacy professional development, redesigns of student score report formats, and intense scrutiny of the Common Core State Standards (CCSS) and consortium-driven assessments to measure achievement in relation to these standards, many parents, educators,

students, and other stakeholders seem to hold assessment scores in low regard (Phi Delta Kappa & Gallup, 2015). Perceptions of over-testing and a negative impact on instruction, as if assessment and instruction were unrelated or even competing forces, dominate in the media even as some parents believe in the general importance of assessment for school evaluation and to highlight inequities across students, schools, and school systems (Council of Great City Schools, 2015; Phi Delta Kappa & Gallup, 2015). A better understanding of the characteristics of a comprehensive assessment system can help to address these perceptions and underlies the motivations for this project.

By shifting more discretion and responsibility for state assessment and accountability systems to the states themselves, ESSA could reinvigorate states' explorations of how best to articulate CCR goals for students and education systems and how best to measure progress toward those goals. Many states, including those that have partnered together for the SCILLSS project, are eager to collaborate with one another and with leading measurement and science experts to take on the new challenges and opportunities this shift offers.

The SCILLSS project is placing an emphasis on academic content standards in science because at this time, many states have had an opportunity to work through assessment design with an assessment consortia or on their own for both ELA and mathematics, but have not done so for science. We chose to focus on the Next Generation Science Standards (NGSS) because with 17 states having adopted this set of common science standards, there is cross-state applicability and generalizability beyond the states engaged in this project. We will develop tools and resources aligned to NGSS, affording states the option to apply the principled-design framework and processes to their state-specific academic standards or, if they are an NGSS state, to adopt the materials that are developed in alignment. Through the use of detailed guidance and

tools, key facets of the state-specific work completed through this project will be adaptable to other states' contexts and sustainable beyond the life of the project.

Because each of the partner states is currently engaged in standards revision or involved in early implementation of a revised set of academic content standards in science, it is the perfect time to engage in foundational design of science assessment systems. New, framework-inspired standards incorporating three dimensions (cross cutting concepts, disciplinary core ideas, and science and engineering practices) pose unique challenges to assessment and demand new ways of measuring science learning to ensure students are being assessed on complex science thinking, not just superficial knowledge.

The development and adoption of science standards, the grades at which students are assessed, and vendor partners vary across project states. Nebraska (NE; vendor partner Data Recognition Corporation (DRC)) adopted its science standards in 2010 and conducted a comparison study to the NGSS in 2016, in which they found that 90% of standards are strongly or partially addressed by NGSS. NE students are assessed in science in grades 5, 8, and 11. Though Montana (MT; vendor partner Measured Progress) played a key role in the development of the NGSS, the state did not adopt the NGSS. However, new science standards have been proposed and are expected to be similar to the NGSS. MT students are currently assessed in science in grades 4, 8, and 10. Finally, the Wyoming Science Content and Performance Standards are based on the framework of NGSS, with revisions to make them Wyoming-specific (WY; vendor partner Educational Testing Service (ETS)); these standards are currently in the revision process. WY students are expected to be assessed in grades 4, 8, 9, and 10. These variations across participating states will strengthen the generalizability of project benefits across science approaches and across multiple vendors who serve states' assessment needs.

In the present context, state education agencies (SEAs) and LEAs have abundant options for testing with assessments that, according to those who sell them, are tightly aligned with important academic content standards. These assessments purportedly diagnose instructional needs for individual students, gauge progress toward goals within and across school years, offer teachers actionable next steps for instruction, inform parents of whether their children are on the path toward college- and career-readiness, inform students, parents, educators, and institutions of higher education (IHEs) that students are actually prepared to succeed in IHE settings. Through the SCILLSS project, we believe that both large-scale and local science assessments can be restructured and re-engineered to ensure standards alignment, system coherence, and to yield scores with more meaningful information.

Teachers and administrators need to trust the information they get from tests and to get the right grain-size – which is a function of the design of the test, not the number of students or scores aggregated into indicators – to serve their purposes. The SCILLSS partner states are eager to develop a comprehensive assessment approach that clarifies and strengthens the connection between their statewide assessments, local assessments, and classroom instruction, enabling all stakeholders to derive maximum meaning and utility from assessment scores. Through the planned project activities, state and local educators will have the opportunity to inform principled-design elements while also building their assessment literacy and capacity to ensure that their assessment systems yield valid and coherent information.

Leading measurement experts agree that it is time for a paradigm shift in testing that places validity in its rightful leading role and coherence as its partner. With the right framework, tools, and resources, state and local educators can work alongside measurement experts to

revolutionize instructionally-informative, accountability-worthy educational assessment for current and future generations of students.

Chapter 2 – Project Significance

Recognizing the limitations of test specifications for standards-based test development, all four of the consortia US Education Department (ED) funded to build assessments aligned with CCR standards (Smarter Balanced Assessment Consortium (SBAC), Partnership for Assessment of Readiness for College and Careers (PARCC), Dynamic Learning Maps (DLM), National Center and State Collaborative (NCSC)) drew upon principled-design approaches as they designed and developed their assessments, although none addressed science. Further, the recent redesign of the Advanced Placement (AP) assessments represents an extensive reworking of how academic domains are mapped and how concepts and skills in those domains are developed and measured (Bejar, 2010). The design and development approaches for all of these assessments were guided by panels of the most eminent measurement experts in the country. Thus, the use of principled-design approaches in highly visible academic assessments meant to inform classroom practice has become the choice among measurement experts and can be considered the industry standard. The paradigm has begun to shift.

To push this revolution further, which will reap time, money, and information benefits to all those taking, paying for, and using results from assessments, will require firmer articulation of principled-design approaches among existing and future assessments. Among existing assessments, although many have used aspects of principled-design, the full benefits of principled-approaches remain unfulfilled. Primarily among the reasons for not reaching the full potential of these models is that relatively few individuals or entities have the experience necessary to design and manage systems based on principled-design approaches or to connect the

many dots within the operational testing puzzles or between the worlds of testing and instruction. Therefore, we propose to leverage existing tools and expertise to generate more broadly applicable resources and to strengthen the knowledge base among state and local educators for using principled-approaches and evaluating how and how well they work for creating higher quality assessments and more useful assessment scores. We have brought together the right experts and the right state partners to make this move in ways that are sound in terms of psychometrics, content demands, and practitioner needs.

Relevance to the Secretary's Priorities

Through the SCILLSS project, we propose to address each of the Secretary's four absolute priorities and three competitive preference priorities (CPPs). We address **Absolute Priority (AP) 1** (collaboration) by bringing together a group of three states (NE as lead, along with MT and WY) with three independent organizations and an external evaluator for the purpose of improving the quality of statewide assessment systems and, thus, enhancing the meaning and use of the scores those systems yield, with a particular focus on science. We will not only take into consideration the unique context and perspectives of our participating states, but ensure that our process and our outcome resources support and encourage replicability and generalizability to states outside of the project. We propose to address **Absolute Priority 2** (multiple measures) by establishing a means for states to strengthen the meaning of statewide assessment results and connect these results with local assessments and classroom work samples in a complementary system. This will allow for far deeper associations between assessment scores and instruction than could be achieved with simply varying item formats. We propose to collect aggregated statewide assessment data and individual exemplars in a body of evidence that supports analysis of cross-sectional and within-student progress, as emphasized in **Absolute**

Priority 3 (charting student progress over time). Our focus here is on charting the development of meaningful science concepts and skills to support instruction and instructional planning more deeply than can be done using test scores alone. We will support **Absolute Priority 4** (comprehensive academic assessment instruments) by building principled-design tools to guide educators through a clear process aimed at strengthening their assessment systems in science. This design process will build capacity among state and local stakeholders to create and evaluate standards-based claims and to ensure local assessment systems provide meaningful, useful information to complement the information that statewide systems offer.

SCILLSS will address **CPP1, Developing Innovative Assessment Item Types and Design Approaches**, by using principled-design methodologies to evaluate current science assessment items and develop task models for new science items that map back to standards-based claims and offer an innovative approach to accessing student knowledge and skills. Our project's research-based, replicable, sustainable methods provide a clear path and process for SEAs and LEAs to design, build, and evaluate assessments and individual assessment items that support score meaning and use. We will address **CPP2, Improving Assessment Scoring and Score Reporting**, by engaging state and local educators in clarifying the intended interpretations and uses of assessment scores, and by creating a repertoire of tools aimed at improving the utility of student performance results for all stakeholders. These efforts will stem from activities that address **CPP3, Inventory of State and Local Assessment Systems**, which will involve a needs assessment for each state to review their statewide and local assessments for quality, standards and instructional alignment, purpose, utility, and equity, with an intentional focus on identifying redundant or unnecessary assessments.

In addition to addressing the Secretary’s absolute and competitive preference priorities, the SCILLSS project will honor the significant work that the US Department of Education, the National Science Foundation (NSF), and states themselves have already funded in the past decade in support of high quality, standards-based assessment systems and science standards and assessments. Further, SCILLSS will not only address all four absolute priorities and all three competitive preference priorities, but will do so in an integrated, coherent manner. As we describe in detail in the pages that follow, we target validity as the critical, unifying concept in assessment that is fundamental to coherence within and among assessments. With validity understood as a judgment of a body of evidence related to the interpretation and use of assessment scores (AERA APA, & NCME, 2014), we aim to build means for states and their LEA partners to elicit validity-relevant evidence by looking closely within items and assessments, looking across assessments within systems, and enhancing the meaningfulness of assessment scores as indicators of achievement.

The SCILLSS project is firmly grounded in the *Standards for Educational and Psychological Testing* (AERA, APA, & NCME, 2014), which are the primary guidelines used to improve upon current practices and develop new processes for assessment system evaluation and design. Through a comprehensive design process, project leaders will ensure the project objectives, activities, and outcomes are focused on meeting the standards of the professional testing community, with particular attention to Standard 1.0.

Standard 1.0. Clear articulation of each intended test score interpretation for a specified use should be set forth, and appropriate validity evidence in support of each intended interpretation should be provided. (AERA, APA, & NCME, 2014, p. 23)

Significance of the Problem

Every education agency that imposes assessments on its students and staff does so for a reason. Some assessments are intended to provide information about how well students as a group are performing to help administrators make decisions about program effectiveness; others are intended to provide achievement information that is actionable at the student level. All assessments have a purpose and only by identifying and clarifying that purpose, or set of purposes, can one begin to determine how to evaluate the validity of the interpretations of the scores an assessment yields. Assessments themselves can be neither valid nor reliable. Reliability is a characteristic of scores, scorers, and decisions, while validity relates to how assessment scores are interpreted and used. Validity and reliability depend entirely on how the assessments were designed, built, administered, scored, and reported. Protecting the validity and reliability of assessment scores requires great care in the entire set of decisions from establishing a clear purpose, through assessment design and development, through all aspects of administration, scoring, and reporting. Neither validity nor reliability are matters for consideration once a test package is in place or after score reports are in educators', parents', and students' hands.

Just why these issues are so important to states at this time requires a brief look at the policy history that has led to the current large-scale assessment context in the US.

US Federal Education Policy Regarding Large-Scale Assessment

Since the introduction of statewide, standards-based assessment mandates under the Elementary and Secondary Education Act of 1965 (ESEA), as reauthorized in 1994 and again in 2001 and 2015, statewide assessment systems should support better practices within schools and classrooms and improve student achievement. They are meant to do so via two pathways. The first pathway is more direct: local educators can use the scores to evaluate their curricula and

make decisions about whether and how to make adjustments in those curricula. The second pathway is more indirect. Via accountability systems, state and local stakeholders can use assessment scores to make decisions about how to direct resources (e.g., human, fiscal, program, service, technology, materials) to better serve students.

This logic is based on the systemic reform model (Smith & O’Day, 1991) underlying the 1994, 2001, and 2015 reauthorizations of ESEA. Other components of the systems in this model are the academic content and performance/achievement standards developed to drive both the development of the assessments and the development of the curricula used to inform instruction. Taken together, these integrated, aligned standards, assessments, and accountability systems are intended to result in increased student achievement (Forte, 2010).

At the local level, the model is somewhat extended: outcomes, as defined in academic content and performance/achievement standards, are meant to drive the development of assessments, curricula, and instructional practices used in classrooms. While the state policy role is to set overall targets (e.g., provide at least recommendations for content and performance/achievement standards, set statewide accountability goals) and distribute federal and state resources to drive improvements toward those targets, local educators are responsible for determining how to develop and implement programs, services, curricula, instruction, and other assessments toward improving achievement. This is exactly as Smith and O’Day’s (1991) systemic reform model holds: set targets as a matter of policy and let local educators and other stakeholders figure out the how, with necessary state supports for implementation.

This leads us to two key challenges for states. First, state and local education agencies must ensure that each assessment yields information that is meaningful, interpretable, and useful in relation to specific needs and purposes. Second, systems of assessments must yield

information that is meaningful to the educators who make the decisions that directly affect policies and practices about districts, schools, and classrooms; if it does not, the assessment system by definition fails to meet one of its critical purposes. State systems are generally purposed to inform policy and practice at the state, local, and school levels, so should yield information that is meaningful and useful at these levels; local assessment systems are particularly positioned to inform district, school, classroom, and student decisions. These local systems will miss their mark if they do not complement the state system and provide additional meaningful, useful, and used information from each of the assessments. Both state and local systems fail to honor their students' and educators' time and their taxpayers' dollars if they are not coordinated and as lean as possible. Thus, each score from each assessment must carry clear meaning and must be associated with strong evidence to support its interpretation and use for specific purposes. The set of assessments within an assessment system should yield complementary, comprehensive information. Any assessment that yields information that is (a) ambiguous or only interpretable in an ordinal (more than last time) sense; (b) simply overlapping information gained elsewhere; or (c) not connected to specific high quality decisions and uses in combination with other data should not be administered.

Validity and Coherence

Any teacher in any classroom might well be asked by a student, “why do I have to take this test?” or by a parent, “why are you taking valuable time away from instruction for all that testing?” What might that teacher say in response? Likewise, a chief state school officer or governor or legislator is often asked in one way or another, “why are you spending so much time and money on testing students?”

We would hope that the teacher could answer by pointing to what each test indicates about what a student or group of students knows and how she uses that information to guide her instructional decisions in the short and long term or how administrators use that information to guide decisions that at least ultimately support her work in the classroom. We would hope that the officials would, similarly, state with confidence what the assessment scores mean and how they are used to improve systems for students. None of these responses requires any psychometric sophistication, but all depend upon how the assessments and systems were built.

An assessment must be built to yield the specific scores these stakeholders need and use; each assessment within an assessment system must be warranted. At a global level, one could imagine an atlas that presents the entire world view in its opening pages and then proceeds to focus on specific regions, countries, territories, cities. If one were planning a trip, the atlas might offer grand ideas about where to go and allow a focus on subset of pages. But, the actual “going” would require a different set of maps, current guidebooks, and other networked resources that provide much finer-grained, timely, and well-connected information. Teachers need atlas-level information while planning to teach and need finer-grained information and know how and why it relates to instruction. Administrators must rely on the quality of that information to support their teachers as well as that from other assessments meant to inform educational policies and practices in the contexts beyond the walls of the classroom. In other words, teachers and administrators need to trust the information they get from tests and to get the right grain-size – which is a function of the design of the test, not the number of students or scores aggregated into indicators – to serve their purposes.

Through the SCILLSS project, we intend to guide states through design processes whereby they will create a state-specific Theory of Action (ToA) and validity framework that

demonstrates how and where their assessment systems offer meaningful and useful score information. By incorporating their conception of score interpretation and use into these foundational tools, states will have the ability to better articulate how their assessment claims connect with, and are supported by, test scores and other sources of evidence. This deep analysis of each state's argument for score meaning helps to strengthen both the validity and coherence of their systems. This combination represents a new perspective that is or verges upon a paradigm shift in educational assessment.

Promoting Promising New Strategies: The Paradigm Shift

In the time before systemic reform and standards-based assessments, large-scale assessments administered in K-12 schools were designed to yield norm-referenced scores. That is, these tests were meant to indicate how students measured up in relation to each other in terms of outcomes in broad domains like language arts, mathematics, or science. When the US federal education policy shifted to a standards-based orientation, where assessment scores are meant to indicate how students measure up in relation to knowledge- and skill-based content and performance standards, models of test design and development failed to make a parallel shift. As many have pointed out, this has resulted in weak evidence of standards-based score meaning (Ferrara & DeMauro, 2006; Haertel & Lorie, 2004; Huff, Steinberg, & Matts, 2010; Luecht, 2013; Martineau, Paek, Keene, & Hirsch, 2007).

In contrast, consider the far more detailed perspective characterized by a task performance cognitive model (Leighton & Gierl, 2007, 2011) that aligns with standards-based, instructionally-focused assessments. If test scores are meant to be interpreted as reflecting students' knowledge and skills in order to intervene and make specific changes in instruction or its context, then one needs information about what is necessary to produce a response to a test

question in addition to whether the response is simply correct. If a teacher or group of teachers is meant to use assessment scores to inform curriculum development and lesson planning, they will need information based on more detailed cognitive models than test specifications can provide. In the Leighton and Gierl (2007; 2011) framework, such detail requires a task performance cognitive model that indicates “the specific cognitive processes required to respond to tasks and provide an opportunity for fine-grain inferences about student achievement (strengths) as well as gaps in student learning (weaknesses)” (Huff, Warner, & Schweid, 2016, p. 414). Tests that are based on less specific types of cognitive models cannot yield valid, actionable information on a consistent basis for there is nothing anchoring their items or their forms to a firm theory of what exactly is being learned and measured.

Approaches to test design and development based on task performance cognitive models include Cognitive Diagnostic Modeling (CDM; e.g., Rupp, Templin, & Henson, 2010) and principled-design approaches such as Evidence-Centered Design (ECD; e.g., Mislevy, 2006; Mislevy & Haertel, 2006; Mislevy, Steinberg, & Almond, 2003). Specifics vary across these approaches, but the big idea involves representations of what one needs to know about a student and how a student would demonstrate that. For example, if one wanted to know how well a student could support an argument that plants get the materials they need for growth primarily from air and water (NGSS 5-LS1-1), how might one design tasks and items that allow students to demonstrate this? Using a test specifications model, the answer might be to pose six questions that have to do with air or water and have a depth of knowledge rating around two. That’s just not good enough to support meaningful test score interpretation and use.

Just as teachers must engage sophisticated critical thinking and clarity of focus and purpose as they design curriculum, lessons, activities, and classroom assessments, so must test

developers as they design both tests and each individual item that makes up those tests. Good assessment design and good instructional design are not separate concepts or even associated concepts connected via a thin tether of standards. They draw from the same core and should operate with similar grain sizes.

We will draw upon a framework (Forte, 2016) that connects key components within every state's standards-based assessment so that our work not only reflects principled-design elements but also maximizes generalizability and usefulness for meeting quality criteria such as those required for federal peer review (see Exhibit 1; this illustration was taken with permission intact from its original source without reformatting here to ensure accuracy). As illustrated in the exhibit, the larger claims, represented by tasks, collectively synthesize the underlying academic content standards to move to a level where meaningful interpretations can be made along with decisions that inform classroom activities. The interconnections among these characteristics of domain specification are then linked with elements of the assessment system (e.g., performance level descriptors, task models, items, blueprints, score reports) to further clarify the evidence of student learning and how it can be used.

Our approach is based on a simple ToA (see Exhibit 2) that links principled-design approaches with clarity and coherence within and across standards-based assessment and classroom contexts. A key aspect of this approach is designing systems with the end goals and uses in mind. If we expect assessment information to have value and usefulness for educators, then at the design phase, we need to understand how they understand and apply information to be able to connect it to the classroom.

Exhibit 1. A Framework for Applying and Evaluating Principled-Design Approaches

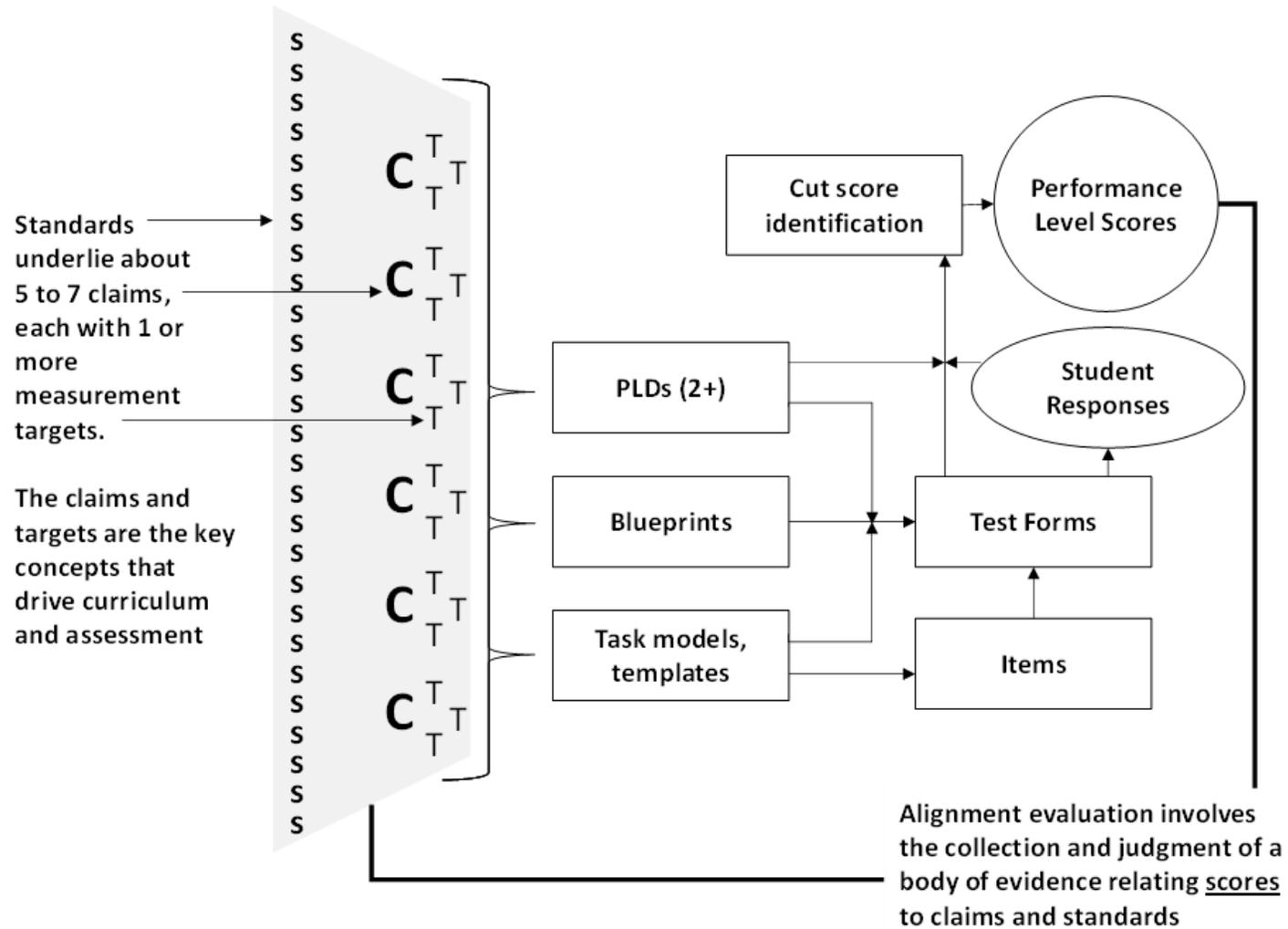
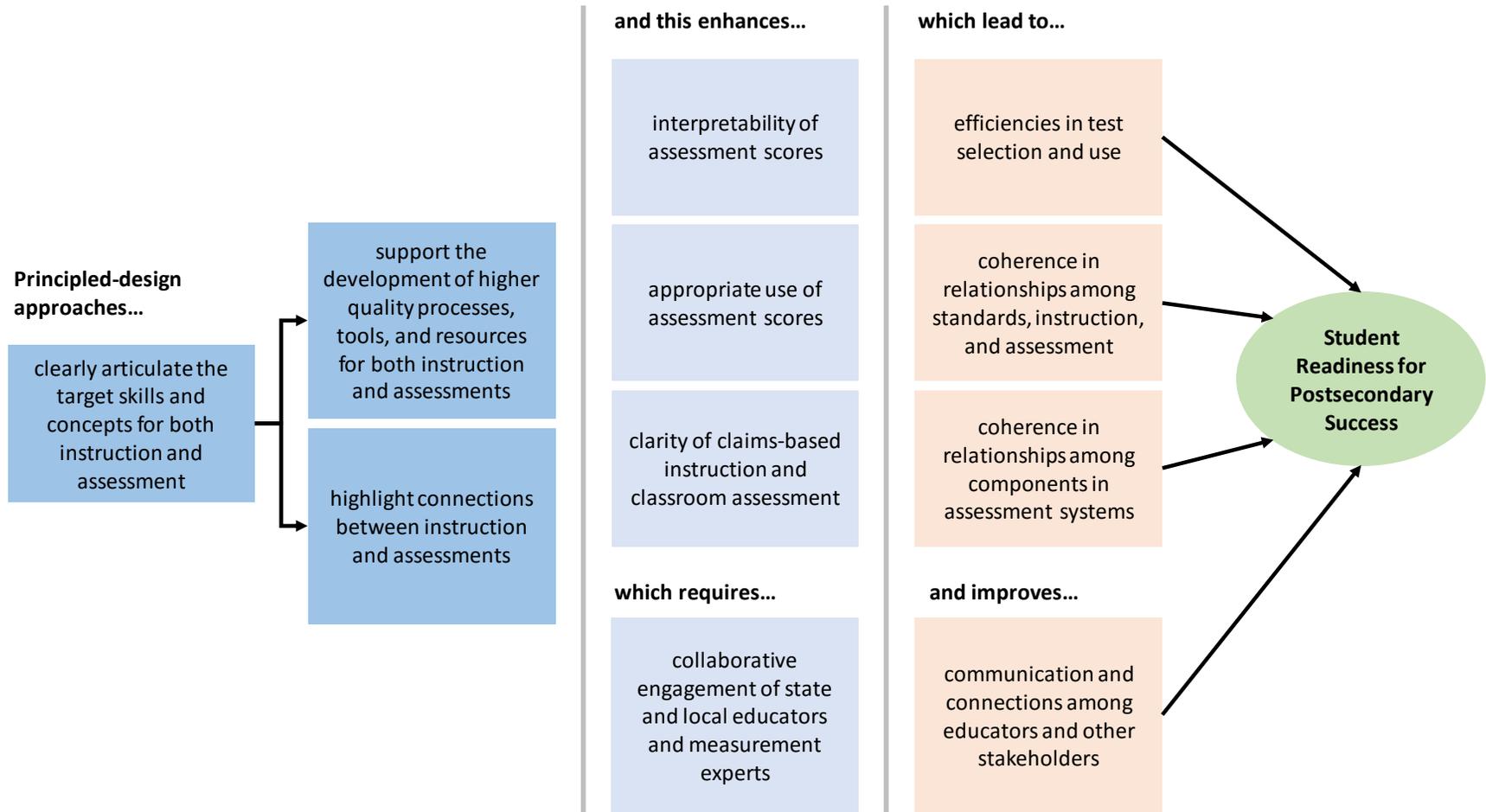


Exhibit 2. The Theory of Action for SCILLSS



In support of AP4 and CPP1, we will lead a collaborative work process whereby K-12 science educators and assessment specialists engage with science specialists and measurement experts to apply principled-approaches to the redesign of their science assessments. Through a cross-state collaborative work process, the project team will guide the state teams through a process of creating a common validity evaluation framework and assessment system ToA that can be applied to the subsequent project tasks as well as feed into each state's work on a tailored assessment ToA and validity framework. As the design tools and processes are refined through the course of the project, they will serve as general templates to be shared and used beyond the project states.

In the next section we list the tools and resources this project will yield and, in Chapter 3, we describe in further detail a series of phases with key tasks aimed at achieving the project objectives. Our approach is deeply influenced by our experience as educators and places high value on the on-going collaboration and engagement of educators in building supports and resources for educators. We eagerly accept the challenges associated with shifting the paradigm in educational measurement from one that prioritizes assessment scores as means for ranking students, schools, and educators, to one that prioritizes clear educational targets and providing all students, schools, and educators with the resources and skills they need to achieve them.

Utility and Generalizability of Project Products and Contributions to the Field

A primary goal of SCILLSS is to leverage existing tools and expertise to generate more broadly applicable resources and to strengthen the knowledge base among participating SEAs and LEAs for using principled-approaches and for evaluating how well they work for creating higher quality science assessments and more useful assessment scores. As described in the next chapter, the SCILLSS project will yield a number of tools and resources that will have

applicability and use beyond the project’s participating states. The intent of our project design is to create tools and resources that outline evidence-based practices and processes that any SEA or LEA could use to take stock of their assessment system and each of the individual assessments within them. These final and vetted tools and resources will be shared publicly on the SCILLSS project website that will be maintained for five years beyond the funded period of the project. In year four of the project, the organizational partners will also document and share project results and implications for the field in a variety of formats and venues.

State-specific deliverables resulting from project efforts will include: one (1) tailored ToA for each participating state, as well as one post-project survey, and one (1) state-specific post-project action plan for each state (CPP2). Generalizable deliverables for use beyond the project states include: one (1) common needs assessment, to include local self-evaluation tools and protocol and state self-evaluation tools and protocol (CPP3); a compendium of final large-scale assessment resources for use beyond project states, to include one (1) ToA template, one (1) project ToA, three (3) prioritized claims, three (3) sets of claim-specific PLDs, three (3) sets of claim-specific measurement targets, task models, and design patterns, three (3) sets of task-specific sample items, and four (4) web-based assessment literacy modules (AP2, AP4, CPP1, CPP2); a compendium of final classroom-based resources to include six (6) task models, six (6) tasks and six (6) sets of student artifacts (AP3); and two (2) summary briefs, sixteen quarterly reports, three (3) annual reports, and one (1) culminating project report.

Chapter 3 – Project Design

The project described in this proposal is designed around intense challenges that threaten the viability of standards-based assessment systems in school reform efforts. The unifying goal of this work is to create a framework for clearly articulating the intended meaning and use of

science assessment scores. Without such clarity no amount of technological enhancement, reduction in scoring time or costs, advancement in psychometric characteristics, or professional development will be effective in improving assessment quality and all testing is over-testing. Validity is the heart of the matter for assessment and validity starts with clarity about intended meaning and purpose.

The framework will take the form initially of a common ToA and validity evaluation framework with deep focuses on 1) the interpretation of standards into claims, PLDs, blueprints, and items; 2) the connection of claims, PLDs, and assessment scores with classroom tasks and other artifacts to support meaningful interpretations of assessment scores in relation to curriculum and instruction; and 3) the representation of each component in state and local assessment systems in relation to specific informational needs and the degree to which those needs are met with high quality data.

To address these three objectives, SCILLSS is organized into six phases that contribute to the development of state-specific and generalizable deliverables, and make up the scope of work described in this chapter. We weave together themes that cut across all phases through interstate collaboration; collaboration among state and local educators; collaboration among measurement practitioners and front-line educators to target all aspects of assessment implementation; and state collaboration with independent technical support providers with strong national reputations for their work on assessment quality and federal policy implementation.

Phase 1 – Project Management (Ongoing)

Objective: To ensure that the project is managed appropriately to support engagement, effectiveness, and responsible stewardship of federal, state, and local resources.

Phase 1, Project Management, encompasses the infrastructure necessary to do the work of the project with efficiency and efficacy. The project team recognizes the importance of regular communication and collaboration with state and organizational partners throughout the development and evaluation process. As such, we have several accountability mechanisms in place to manage communication and workflow processes, monitor progress, mitigate risks as they arise, and allow for ongoing collaboration between state and organizational partners. These include:

Project Kick-off Meeting (In-person) Within six weeks of grant award, the full project team, including all state and organizational partners, will convene an in-person, two-day kick-off meeting with state and organizational partners in Lincoln, NE. The purpose of this meeting will be to review the project goals, tasks, and timeline, and to allow project participants to get to know each other and learn about the partner states and organizations.

Weekly Management Meetings (Virtual) The management team will meet weekly to discuss project management issues (e.g., contracts and budgets), monitor progress toward project goals, activities, and deliverables, and identify and address anticipated or actual work flow, personnel, or budget issues. These meetings will be facilitated by the project director, and the outcomes will support the seamless achievement of project goals, activities, and deliverables within the timelines and budget of the project.

Monthly Project Meetings (Virtual) Each month, the full project team, including state representatives and organizational partners, will meet to provide updates on progress toward project goals, activities, and deliverables. These meetings will provide a forum in which states can share updates and ideas regarding the development of both state-specific and generalizable project outcomes, and troubleshoot issues as they arise.

Annual Project Meetings (In-person) Once each year the full project team, including state representatives and organizational partners, will convene an in-person, two-day meeting at a location within one of the partner states to share project-related information and to engage in mutual learning opportunities to develop both state-specific and generalizable outcomes. Expert panelists will attend as appropriate based on expertise necessary to inform the goals of the meeting. We anticipate that the first annual meeting will be held in Lincoln, NE. Exact locations for subsequent meetings will depend on the purpose of the meeting and convenience to state staff.

Web-based Collaboration Tools We will use SharePoint, a web-based project collaboration tool, to construct an online workspace for all project staff to use in managing the various phases of the SCILLSS project. SharePoint will include a password-protected work-space, or portal. This will ensure that all state and organizational partners can maintain 24x7 access to project documents and other resources, post messages, collaborate on project activities, and support the project's needs. The SharePoint application will foster immediate and efficient sharing of information to facilitate collaboration among all team members. We will also use Box, a content management solution, to transfer secure content, including student exemplars and classroom artifacts, among project staff and SEA and LEA staff. Box protects files in transit with TLS and with 256 AES at rest.

Project Management Tool The project director and deputy project director will create and monitor work plans within ProWorkFlow. This digital project tracking tool will provide transparency of process, roles, completion of phases, and progress toward delivery, allowing project leaders to regularly evaluate project status by team member, phase, or deliverable.

SCILLSS Project Website The project team will develop and maintain a website through which the SCILLSS project will communicate with the public and education stakeholders to share all generalizable resources developed by the project for use beyond the project states, including the common needs assessments, compendium of final large-scale and local assessment resources, web-based assessment literacy modules, summary briefs, and annual and culminating reports. The project team will maintain the project website for a minimum of five years after the completion of the 48-month active project period to facilitate public access to the resources developed via the project.

Now that we have established an infrastructure for our project, we turn to the remaining substantive phases of the project.

Phase 2 – Needs Assessments (~3 months, Year 1)

Co-principal investigator, Dr. Chad Buckendahl, with support from ACS Ventures personnel, will conduct a needs assessment through interviews with key staff in each partner state and through the implementation of local and state self-evaluation tools to gather important information about the characteristics and status of each assessment system, and to assist LEAs and SEAs with critically evaluating and efficiently designing and implementing a comprehensive assessment system. To support the administration of the needs assessment, the organizational partners will develop one (1) local self-evaluation tool and one (1) state self-evaluation tool.

2.1a Local Self-evaluation Tool and Protocol

Objective: To establish processes and protocols to support LEAs in evaluating their own assessment systems to ensure comprehensive systems while minimizing burden and redundancy (CPP3).

At the local level, superintendents and administrators must evaluate multiple assessments that make up their assessment system for a variety of purposes, consider the evidence that supports the use of scores for each purpose, and consider the degree to which there are gaps or redundancy in information necessary for those purposes. Implementation of a local self-evaluation tool can assist the LEAs with critically evaluating and efficiently designing and implementing a comprehensive assessment system that includes statewide and other assessments.

Co-principal investigator, Dr. Chad Buckendahl, will lead the development of a local assessment self-evaluation tool. After initial development, expert panelists will review and provide feedback to inform improvements to the draft tools and protocol. Once revisions are applied based on expert panelists' feedback, ACS Ventures will coordinate a plan with state staff to pilot the self-evaluation tool in one district in each state. The pilot activities will involve virtual pre- and post-administration meetings with LEA staff within each state to 1) provide support for implementing the self-evaluation tool and outline procedures for collecting and formatively evaluating evidence about the utility of the tool and protocols, and 2) provide a forum for LEA staff to provide feedback regarding any necessary refinements to the self-evaluation tool and protocol. Based on this evaluation feedback, and to ensure scalability beyond the project, Dr. Buckendahl will refine the self-evaluation tool and protocols for wider dissemination, and will generate additional suggestions for how the protocols can be used by LEAs to support greater state-local collaboration.

2.1b State Self-evaluation Tool and Protocol

Objective: To establish processes and protocols to support SEAs in evaluating their large-scale assessment system to ensure that the system is of high quality, aligns to instructional goals, has

clear purpose and utility, and is designed to provide information on students' progress toward achieving proficiency on state standards (CPP3).

Dr. Chad Buckendahl will also lead the development of a draft large-scale assessment self-evaluation tool. Expert panelists will review and provide feedback to inform improvements to the draft self-evaluation tool. Once finalized, ACS Ventures will disseminate the self-evaluation tool, conduct interviews with state department of education staff, and gather statewide student performance data as well as data on the characteristics and performance of items from the state science assessment. Results from the needs assessment will 1) inform the review of the project goals, tasks, and timeline, and 2) ensure that the project is designed to address individual and collective needs and goals with regard to the purpose, use, and validity of elements within participating SEAs' assessment systems.

The overall outcomes of the needs assessments include processes and protocols that state and local staff can use to evaluate their own assessment systems and to promote better understanding of the components of a comprehensive assessment system and where information can be efficiently collected and evaluated to support inferences about student achievement and integration with learning strategies. To ensure maximum generalizability and scalability beyond the 48-month project period, the organizational partners propose to provide post-hoc technical assistance to both LEAs and SEAs to implement and interpret the self-evaluation tool, and subsequently to develop a customized ToA and validity evaluation framework designed to inform improvements to the assessments that comprise their assessment system.

Phase 3 – Validity Evaluation Framework: Purposes and Claims (~9 months, Year 1)

Objective: To secure common definitions of validity and a validity evaluation framework that can be generalized and tailored to specific assessment types and contexts (API, AP2, AP3, CPP2).

Development of the overarching validity framework is at the heart of this project and will begin immediately upon project initiation in early 2017. This will involve direct consideration of the goals and objectives of the project, how we will achieve them, and how we will know we are achieving them to ensure that all project participants are on the same page about the project and their roles on it. This parallels the logic of the technical substance of the project, itself: we must start by defining our measurement goals and then build assessments and systems to do just that.

The following section outlines the specific tasks that will be completed to accomplish the objective of Phase 3, as stated above.

Key Task(s)

3.1 Web-based Assessment Literacy Module (Part 1 of 4) The assessment literacy specialist will develop the first in a series of four web-based assessment literacy modules for SEAs, to include additional supporting resources (e.g., peer-reviewed journal articles, generalizable templates, FAQs) to describe the purpose of the state needs assessments, ToA, and validity evaluation framework, and to provide actionable steps for SEAs to develop a ToA and framework based on their specific needs. The module will be shared with the participating states to inform project activities, and at the culmination of the project, will be revised and finalized for dissemination and use by the public via the project website.

3.2 Project ToA The project director and deputy project director, with support from the co-principal investigators, will develop one (1) generalizable ToA template as a tool to guide the

development of a common ToA for the project that delineates the overarching project vision and priorities as applicable to all participating states, and one (1) generalizable validity evaluation framework. The management team will gather documentation from states to collectively revise the ToA in an iterative manner for state examination. State representatives and organizational partners will come to consensus on a common vision for addressing validity issues as part of assessment design and development and for gathering and evaluating validity evidence in support of meaningful, useful assessment scores. The outcome of this step will be a common ToA that can then be tailored to specific state assessment types and contexts.

3.3 State-specific ToAs and Validity Evaluation Frameworks Using the common ToA, common validity evaluation framework, and results from the needs assessment as a foundation, the project director and deputy project director will coordinate with state representatives to 1) tailor state-specific ToAs based on state-specific purposes and uses of assessment scores and claims as well as the characteristics of each state system, and 2) tailor a validity evaluation framework for each state. The project director and deputy project director will coordinate one (1) in-person working session per state, and a series of virtual working sessions, as needed, for each state to develop their state-specific ToA and validity evaluation framework. Expert panelists will virtually review to support states in the development of these materials.

Science content and assessment specialists will review the state-specific ToAs, validity frameworks, and identified claims and uses of assessment scores to identify commonalities and variances across states, and will collaborate with the expert panelists to identify and recommend three prioritized claims, one at each of the three targeted grade spans, across the participating states to guide Phase 3 work. A SCILLSS project team member will serve as the science content and assessment specialist at the elementary level, and two additional science content and

assessment specialists will be determined, one each for the middle school and high school levels, at the start of the project. Throughout this process, the project director and deputy project director will engage state representatives, expert panel members, science content and assessment specialists, and other management and technical staff, as necessary, to come to consensus on (a) the uses of the standards-based science assessment scores and (b) the claims for what the state science assessment scores will mean such that they may be appropriately used for the intended purposes.

Using the common and state-specific ToAs and validity frameworks, the project director and deputy project director will facilitate a virtual meeting with each individual state to identify how (a) project activities will address key claims and (b) how the state will address other aspects of their validity evaluation evidence needs via other means (e.g., through partnerships with IHEs, other states, or LEAs). Meeting participants will include members of the management team, technical staff, and state representatives. The reporting lead will create documentation to reflect these decisions for approval by each state partner.

3.4 Process Documentation The reporting lead, with support from members of the management team and technical staff, will develop one summary brief to document a generalizable process for states to administer the needs assessment, design a ToA, and develop a validity evaluation framework based on specific state assessment contexts.

With the general and state-specific ToAs and validity evaluation frameworks in hand, project participants will turn to the focus areas within assessments (Phase 4) and connected reporting (Phase 5).

Phase 4 – Intra-assessment Focus: PLDs, Task Models, Items, and Blueprints (~15 months, Years 2 and 3)

Objective: To engage in a collaborative, replicable design process and create assessment design and development tools that clearly target the standards-based concepts and skills meant to drive assessment and instruction (AP1, AP2, AP3, AP4, CPPI).

Our activities for Phase 4 take into account the commonalities across participating states' assessment systems, while also considering each state's specific status and three- to five-year transition plan, to inform the development of a common ToA, validity framework, and set of three prioritized claims; this approach will ensure that Phase 4 outcomes have maximum relevance for participating states, but also the generalizability to other states facing or actively working through their own transitions. The following section outlines the specific tasks that will be completed to accomplish the objective of Phase 4, as stated above.

Key Tasks

4.1 Web-based Assessment Literacy Module (Part 2 of 4) The assessment literacy specialist will develop the second in a series of four web-based assessment literacy modules and additional supporting resources for SEAs to describe the purpose of the work associated with Phase 4, and to provide actionable steps for states to develop or refine elements of their state assessment system based on their validity evaluation framework. The module will be shared with the participating states to inform project activities, and at the culmination of the project, will be revised and finalized for dissemination and use by the public via the project website.

4.2 PLDs, Measurement Targets, Task Models, and Items During Phase 3, the expert panelists and science content and assessment specialists identified commonalities and differences across states as well as commonalities and variations across grades to identify a set of three (3)

prioritized claims to guide the Phase 3 work. Using these prioritized claims, science content and assessment specialists will develop for each claim at each of the targeted grade levels: one (1) set of PLDs, and one (1) set of measurement targets, task models, item templates, and design patterns.

The project director will provide the claims, PLDs, and sets of measurement targets, task models, item templates and design patterns to the expert panel members for review and feedback using the project SharePoint site. Following this review, the science content and assessment specialists will apply revisions to the materials based on expert panelists' feedback. At this stage in development, the project director will facilitate a virtual meeting with the full project team, including state representatives and organizational partners, to provide states an opportunity to collaborate to review, revise and approve the materials.

Next, the project psychometricians will collaborate with the participating states to collect sample items that have appeared on previous operational forms and will not appear on future forms from each state along with item metadata for all available item characteristics and item locations on each state's score scale and PLD ranges. This information will be maintained in a secure location even though the items will no longer be "live." Science content and assessment specialists will collaborate with the principled-design specialists to reverse engineer the sample items using the task models, item templates, and design patterns. This will result in comprehensive information about what each of the items is asking students to demonstrate as they construct and provide a response. All draft items will be shared with expert panelists and state representatives for review via SharePoint; states will conduct reviews of the reverse-engineered items based on a provided protocol that addresses considerations for item clarity and item quality (e.g., alignment, depth of knowledge, accessibility, bias/sensitivity).

The Phase 4 tasks will result in exemplar sets of assessment design and development tools that clearly target the standards-based concepts and skills meant to drive assessment and instruction; the remainder of the claims not prioritized for development in Phase 4 will be addressed through the state-specific post-project action plans as outlined in Task 6.3. This could include (a) reverse engineering existing items for alignment to claims, and (b) development of new task models, item templates, design patterns, and items, as necessary, for aspects of any claims not addressed by existing items.

4.3 In-person Educator Review Meeting The organizational partners and participating state representatives will convene with educators from all partner states with diverse expertise and backgrounds in a three-day, in-person workshop in the fall of 2018 to analyze the outcomes of Task 4.2. At the start of the meeting, participants will convene first as a whole group to identify meeting goals and processes and then break into three grade-level subgroups. The grade-level subgroups will:

1. Analyze materials for clarity and coherence, identifying any gaps or weaknesses in claims as they relate to standards, in task model, template, and design pattern coverage of the claims, and of PLD alignment with the claims and with clear trends in increasing sophistication from lower levels to higher ones; and
2. Generate models for three blueprints (i.e., possible combinations of items), one per grade level, that could yield scores that reflect the claims across the range of PLDs.

Meeting participants will reconvene as a whole group for subgroup presentations on their outcomes and to discuss vertical articulation of the concepts, skills, and materials across grades.

Based on the results of this educator review, science content and assessment specialists will

apply revisions to the task models, templates, design patterns, and PLDs, and will utilize educator input to complete one draft blueprint per grade level.

Benefits from the educator review meetings will be two-fold: 1) educators will build effective habits, broaden their content knowledge, and strengthen their pedagogical practice to provide students systematic access to high-quality instruction and assessment, and 2) high-quality tools and resources will be developed to reflect the knowledge, expertise, and experiences of a diverse representation of educators that, in turn, represent a diverse population of students.

4.4 Process Documentation The reporting lead will collaborate with the project director, deputy project director, and assessment literacy specialist to summarize the outcomes of the meeting in one (1) online proceedings report that includes background information, meeting materials, and resources to support local replication of any aspects of the process of identifying claims through tightly aligned task model, template, design pattern, item, PLD, and blueprint development.

The final set of prioritized claims and their associated PLDs, measurement targets, task models, design patterns, and items will be developed to support the project ToA and designed for applicability for all states, including both participating and nonparticipating states. States will have the option to adopt some or all of the outcomes while others may take the outcomes under consideration for local or future development. For participating states, the management team and technical staff will support state representatives in translating the outcomes of Tasks 4.2 and 4.3 for application within states as determined by states themselves. The reporting lead will incorporate the resulting decisions in the Task 6.3 post-project action plan that will be developed for each state.

Phase 5 – Classroom-based Evidence and Tools (~9 months, Year 3)

Objective: To engage in a collaborative, replicable design process and (a) create classroom assessment design and development tools that clearly target the standards-based concepts and skills meant to drive assessment and instruction and (b) elicit and gather classroom artifacts that illustrate these same concepts and skills for use in enhancing interpretation and use of large-scale assessment scores (API, AP2, AP3, AP4, CPPI).

Phase 5 activities will begin after and be based on the outcomes of the educator review meeting described under Task 4.3. The Phase 5 activities are meant to support more effective interpretation and use of large-scale assessment results by improving the actual meaning of those results in terms of what educators, parents, and students experience in standards-based instructional environments. That is, Phase 5 emphasizes the perspective of those who are expected to interpret and make use of assessment scores rather than the perspective of psychometricians. In this distinction, there is a clear priority of utility of assessment information for educational use over the understanding of technical characteristics of the assessments. Phase 5 encompasses the following tasks.

Key Tasks

5.1 Web-based Assessment Literacy Module (Part 3 of 4) The assessment literacy specialist will develop the third in a series of four web-based assessment literacy modules and additional supporting resources to describe the purpose of the work associated with Phase 5, and to provide actionable steps for states and LEAs to develop task models, tasks, and exemplars for classroom use.

5.2 Task Models and Tasks for Classroom Use Using the prioritized claims, PLDs, and task models resulting from Tasks 4.2 and 4.3, science content and assessment specialists will

collaborate with the principled-design specialists to create two (2) draft task models for each claim and grade level, for a total of six task models, for classroom use. The project director will provide the classroom-based task models to the expert panel members for review and feedback using the project SharePoint site. Following this review, the science content and assessment specialists and principled-design specialists will apply revisions to the task models based on expert panelists' feedback, and will develop one task per task model, for a total of six tasks across grades, for classroom use. The project director will provide the classroom-based tasks to the expert panel for review and feedback using the project SharePoint site. Following this review, the science content and assessment specialists and principled-design specialists will apply revisions to the tasks based on the expert panelists' feedback. At this stage in development, the project director will facilitate a virtual meeting with the full project team, including state representatives and organizational partners, to provide states an opportunity to collaborate to review, revise and approve the materials prior to the pilot study with local educators and students.

5.3 Pilot Study Organizational partners will conduct a pilot study that includes local educators and students from each participating state to 1) gather feedback on the quality and appropriateness of the draft task models and tasks, 2) collect new and extant artifacts that exemplify the claims as manifested in the PLDs, and 3) elicit feedback on the outputs of these activities to evaluate whether they fulfill the intent of demonstrating the necessary link while also providing the level of clarity and understanding with an eye towards actionable uses of the results. The assessment literacy specialist will work with state representatives to recruit approximately 120 local educators representing diverse expertise and backgrounds from across the participating states to participate in the pilot study. The project director, with support from

the deputy project director and science content and assessment specialists, will conduct virtual pre- and post-administration meetings with pilot participants to 1) provide support for evaluating and implementing the classroom-based tasks and task models, and 2) provide a forum for pilot participants to provide feedback regarding any necessary refinements to the task models and tasks. Pilot participants will submit new or extant artifacts aligned to each task and PLD for review and evaluation using the project's Box account which allows secure sharing of large files and allows access that can be controlled with password protection. Each pilot participant will receive a stipend of \$200.00 for participation in the study.

Based on the outcomes of the pilot study, science content and assessment specialists will refine the task models and tasks and vet the exemplars and artifacts to create a compendium of resources available to the public without charge via the project website. These resources, which will be generalizable in nature to all participating and nonparticipating states, will link standards to claims, claims to task models and tasks, claims to PLDs, and tasks to PLDs and will illustrate in classroom terms the nature and range of performance associated with each PLD. The final materials will be shared with expert panelists via the project's SharePoint site; expert panelists will provide feedback regarding clarity and alignment between the task models, tasks, and student artifacts for classroom use.

5.4 Process Documentation At the culmination of Phase 4, the reporting lead will collaborate with the project director, deputy project director, and assessment literacy specialist to develop one summary brief highlighting the purpose and process for developing the classroom-based task models, tasks, and accompanying student artifacts, the outcomes generated from the pilot study with local educators, and expert panelists' final evaluation of the clarity and alignment between the task models, tasks, and student artifacts for classroom use. The brief is

intended to provide a summary of project tasks for participating state and LEAs, as well as to provide details about the collaborative, replicable design process for potential use by nonparticipating education agencies. This brief will be disseminated to the public via the project website and will be delivered to ED.

Phase 6 – Project Evaluation and Reporting (Ongoing)

Objective: To administer a survey to evaluate states' progress and next steps to inform the development of state-specific action plans that will guide post-project efforts, and to provide useful reports to the field and to our grantor, ED (API).

Our approach to project evaluation and reporting encompasses six key tasks:

6.1 Web-based Assessment Literacy Module (Part 4 of 4) The assessment literacy specialist will develop the fourth in a series of four web-based assessment literacy modules and additional supporting resources to describe the purpose of the work associated with Phase 6, and to provide actionable steps for states and LEAs to develop action plans, including engaging with vendor and looking ahead to identify next steps, needed supports and resources.

6.2 Post-Project Survey The co-principal investigators will design a post-project survey to evaluate participating states' progress and next steps with regard to project outcomes and to inform the development of a state-specific action plan for each state that will guide post-project efforts. After designing the survey, the expert panelists will conduct a virtual review of the content of the survey using the project SharePoint site. The co-principal investigators will use feedback from the expert panelists to refine and finalize the survey. Once finalized, the reporting lead will prepare and disseminate the survey electronically to participating SEAs using Survey Monkey, which will generate and record responses upon submission of each survey. Upon

completion of the survey, the reporting lead will compile the results to share with each state and to inform the development of the state-specific action plan.

6.3 State-specific Action Plans The reporting lead will facilitate the development of one action plan for each participating state based on the results from the electronic survey. External panelists will review survey results, state-specific ToAs, and additional assessment documentation to provide commendations and recommendations based on the degree to which elements of the state’s current large-scale science assessment are interconnected and of sufficient quality to address select Standards from the *Standards for Educational and Psychological Testing* (AERA, APA, & NCME 2014). From the commendations and recommendations provided by expert panelists, the reporting lead will collaborate with members of the management team and technical staff to develop draft action plans that 1) summarize commendations and recommendations for future work, 2) provide strategies for engaging assessment vendors in a process and approach for utilizing and replicating project outcomes (e.g., developing additional claims, task models, design patterns, and items), and 3) identify what resources and steps are needed to support future work. State representatives will have an opportunity to review and provide feedback to the draft action plans through a series of virtual meetings and by using the project SharePoint site.

6.4 Process Documentation Project states will attend a final in-person, two-day annual project meeting to share successes and lessons learned, collaborate with other states, and share strategies for implementing their action plans. The organizational partners will revisit, rework, and finalize process tools and resources, including the ToA template, four web-based assessment literacy modules, and the common ToA and validity evaluation framework for use beyond the project states. All final process tools and resources will be posted to the project website for

public dissemination, and during the final, fourth year of the project, the project team will focus efforts on scaling-up the project tools and resources through other avenues of dissemination (e.g., webinars, public gatherings, conferences).

6.5 External Reporting Our proposed external reporting activities are designed to promote scalability within and beyond project states by informing practitioners and researchers about project processes and products. We have designed the dissemination plan around four major components:

1. Production of project reports and other resources that are well-organized, highly accessible to a broad range of readers and users, and designed to facilitate sound interpretation and use in other states and beyond;
2. Maintenance of public access to the project website for a minimum of five years after the completion of the 48-month active project period to facilitate public access to the resources developed via the project;
3. Involvement of participating states and project staff in ED-sponsored meetings and events to share progress and outcome reports with ED and other nonparticipating states; and
4. Involvement of participating states and organizational staff in public meetings, national conferences, and through peer-reviewed journal articles, as appropriate, to share progress and outcome reports with researchers and practitioners.

Project staff will monitor the websites of Association of Test Publishers (ATP), AERA, NCME, Council of Chief State School Officers, National Conference on Student Assessment (CCSSO NCSA), and other relevant organizations to identify opportunities to share information about the SCILLSS project. We anticipate conducting up to four conference presentations annually and preparing up to six articles during the active phases of the project. The outcomes for Task 6.5 are

the dissemination of high quality technical assistance and research documents highlighting procedures, instrumentation, and results designed to be replicated in other venues.

6.6 Reporting to ED Given that this project focuses on issues that may be of particular interest to several offices within ED, we anticipate the need for a somewhat more frequent and detailed set of reports to ED on this project. Therefore, in addition to the kick-off meeting (considered part of management meetings in Phase 1) and our participation in related events convened by ED, the external evaluators will develop 16 quarterly reports and manage the development of three annual reports and one culminating report. These reports may help ED to advise other states about strategies for implementing validity evaluations even before the project is completed. In addition, these reports will ensure that important information from the early and middle stages of the project is documented for inclusion in the final report. Now that we have outlined the work description for each phase of the SCILLSS project, we describe the contributors to this project, roles, FTEs, and how they will work together to achieve the goals of SCILLSS.

Chapter 4 - Project Personnel

The key personnel for this project consist of national experts representing an essential combination of expertise in principled-design, measurement, assessment literacy, and classroom practices to support implementation of the project. Each key project staff person is introduced below. As a note, the key personnel outlined in Chapter 4 will contribute to the majority of the project work plan. However, when appropriate, other members of the organizational and state partners may contribute to project processes and deliverables. All state partners are contributing time in kind, however NE, the lead state, requires a minimal amount of project funding to cover grant administration tasks.

Management Team

Senior Advisor and State Lead: Valorie Foy, Ph.D., is the Director of State Assessment for the NE Department of Education where she oversees statewide school accountability as well as NE's state tests in reading, writing, mathematics, and science. As the Senior Advisor and State Lead for SCILLSS, Dr. Foy will ensure that the project as implemented, is consistent with the needs of NE and the other participating state partners.

Co-principal Investigator: Ellen Forte, Ph.D., (8% FTE) is the CEO & Chief Scientist at edCount, LLC, and has over two decades of experience conducting research, providing advice and reporting on standards, assessments, and accountability, and assisting SEAs and LEAs in the successful interpretation and implementation of education policies. As co-principal investigator she will provide oversight to all project phases, including leadership for the expert panel.

Co-principal Investigator: Chad Buckendahl, Ph.D., (7% FTE) is a partner with ACS Ventures, LLC. Dr. Buckendahl has worked with a range of student assessment programs in a number of US states (e.g., NC, NE, NV, SD, WA, WY) and has advised on assessment development, validation, and related policy considerations for general, end-of-course, alternate, collection of evidence, and English language literacy assessments. As co-principal Investigator and part of the management team, he will work directly with Dr. Forte in the development and design of the project Phases 2, 3, and 6.

Project Director: Elizabeth Towles, Ph.D., (16% FTE) is a Managing Associate at edCount, LLC, and has extensive experience in assessment and validity studies, has led and assisted with numerous local, regional, and national studies of both general and alternate assessment systems and managed various projects intended to improve, design, or redesign assessment systems

around the country. As project director, Dr. Towles will provide oversight to all project phases, including leadership for the Management Team.

Deputy Project Director and Reporting Lead: Erin Buchanan, M.A. (16% FTE) is a Senior Associate with edCount, LLC, and has extensive experience in project management. She currently works with multiple projects at edCount where she leads or assists with the development of technical documentation for the evaluation of large-scale assessment systems. As deputy project director and reporting lead, Ms. Buchanan will support the project director in providing oversight to all project phases.

Assessment Literacy Specialist: Elizabeth Greninger, Ph.D., (16% FTE) is a Managing Associate at edCount, LLC and will serve as assessment literacy specialist to contribute her expertise in facilitating workshops, webinars, and focus groups aimed at connecting state leaders with district staff and teachers via the web-based assessment literacy modules. As assessment literacy specialist, Dr. Greninger will provide direct support to Phases 2, 3, 4, and 5.

Technical Staff

Lead Psychometrician: Andrew Wiley, Ph.D., (8% FTE) is a partner with ACS Ventures, LLC. Dr. Wiley has over 15 years of experience in the education and certification/licensure fields. Dr. Wiley is active in the measurement community, and previously served on the Board of Directors for the Association of Test Publishers (ATP), as well as Chair of the National Council on Measurement in Education (NCME) Annual Award Committee. As lead psychometrician, Dr. Wiley will provide direct support to Phases 4 and 5.

Psychometrician: Susan Davis-Becker, Ph.D., (13% FTE) is a partner with ACS Ventures, LLC. She has worked with a range of testing programs, including K-12 state educational assessment and educator licensure. Additionally, she has provided general educational

measurement and related policy consultation, stakeholder use of assessment score information, and has led validation research. As psychometrician, Dr. Davis-Becker will provide direct support to Phases 4 and 5.

Science Content and Assessment Specialists: Bill Herrera, M.S. (17% FTE), Sally Sanders M.S., (15% FTE), and Dean Genge (15% FTE) all have experience as senior project leads, assessment specialists, and science content specialists. These experts will provide science content expertise across each of the elementary (Mr. Herrera), middle (Mr. Genge), and high school (Ms. Sanders) grade bands as well as contribute to Phases 2, 3, 4, 5, and 6.

Principled-Design Specialist: Howard Everson, Ph.D., (9% FTE) is a Co-Director for Assessment Research for SRI International. He leads the design and development of innovative, technology-based assessments of student proficiency in STEM-related disciplines while his research focuses on assessment design, psychometrics, design of technology-enhanced assessments, and the relationship among cognition, instruction, and assessment. Dr. Everson will provide expertise across Phases 4 and 5.

Principled-Design Specialist: Daisy Rutstein, Ph.D., (9% FTE) is an educational researcher at SRI's Center for Technology in Learning. Dr. Rutstein's work focuses on the application of Evidence-Centered Design (ECD) to the development of technology-enhanced assessments including the development of design patterns, scenarios and items, as well as the identification and application of measurement models for scoring and scaling these tasks. Dr. Rutstein will provide expertise across Phases 4 and 5.

External Evaluator: Brent Garrett, Ph.D., (17% FTE) is a Research Scientist with Pacific Institute for Research and Evaluation (PIRE), specializing in the evaluation of assessment-related and professional development initiatives in special education, history, mathematics, science, and

has over 20 years of experience in evaluation and research. Dr. Garrett will serve as an external evaluator for the project and directly support the external evaluation reporting and dissemination component in Phase 6.

External Evaluator: Matthew Courser, Ph.D., (10% FTE) is a Research Scientist with PIRE who specializes in evaluating education, professional development, and other programs designed to improve the health and well-being of families and communities. Key areas of expertise include working with the PIRE Institutional Review Board, survey design, survey sampling, data collection methodology, and performance measurement. Dr. Courser will work closely with Dr. Garrett to support the external evaluation reporting and dissemination component in Phase 6.

State Leads

In previous years, NE administered a de-centralized local assessment system that measured academic content standards in reading, mathematics, and science called STARS (School-based Teacher-led Assessment and Reporting System). In 2007, the Department received notification from ED that it was out of compliance with provisions of NCLB and was given Non-Approved status for its standards and assessment system. In 2008, Legislative Bill 1157 was passed by the NE Legislature requiring a single statewide assessment of the NE academic content standards for writing, reading, mathematics, and science in NE's K-12 public schools. The new assessment system was named NeSA (NE State Accountability), with NeSA-R for reading assessments, NeSA-M for mathematics, and NeSA-S for science. NeSA replaced previous school-based assessments for purposes of local, state, and federal accountability. The NDE started such assessments starting in the 2009-2010 school year, with the NeSA-S administered operationally starting in 2012. While NDE has made significant progress toward meeting the USED peer review requirements, NeSA remains designated Approval Pending with

regard to their peer review status. In light of NDE's efforts in recent years to redesign their standards and assessment system to meet state and federal accountability requirements, the opportunity to serve as the lead state for project SCILLSS is particularly ideal and will provide the support and collaboration necessary toward meeting peer review requirements. The descriptions below outline the key personnel from each state partnering on the SCILLSS project.

Nebraska: Valorie Foy, Ph.D. (see the Management Team, above).

Montana: Judy Snow is the State Assessment Director for the MT Department of Education where she oversees statewide assessments, assessment training, and communication. She served as an Adjunct Instructor for the University of Great Falls and taught public school in Great Falls.

Wyoming: Deb Lindsay has been the Director of Assessment for the WY Department of Education since 2012, where she has been responsible for implementing the mandatory testing required by No Child Left Behind Act, the state required ACT and collaborative efforts across department divisions to improve accountability measures.

SCILLSS Expert Panel

Throughout the description of the project design in Chapter 3, we define critical points for the engagement of expert panelists for review of project processes and deliverables. The goal is to seek feedback, commendations, and recommendations to improve the overall quality of each of the SCILLSS' deliverables. Selected expert panelists will convene, along with the management team and state leads, at the SCILLSS' annual yearly meeting to contribute expertise and experience in meeting the project goals. We will also match expert panelists' experience and expertise to the creation of specific deliverables for review throughout each of Phases 2-6 to ensure active feedback rather than post-hoc review of deliverables. Below we introduce each expert panelist.

Joanna Gorin, Ph.D., currently serves as Vice President of Research at Educational Testing Service (ETS). She specializes in test and scale construction, validity theory and applications, item generation, diagnostic assessment, item response theory (IRT), and research methodology. In her research, Dr. Gorin explores the integration of psychometric and cognitive theory as applied to principled assessment design and analysis, and she has extensive experience analyzing methods to improve measurement of complex competencies, including the NGSS.

Kristen Huff, Ph.D., currently serves as Vice President of Assessment and Research at Curriculum Associates. She is a member of the board of directors for the National Council of Measurement in Education and serves as associate editor for *Applied Measurement in Education*. Dr. Huff has nearly two decades of experience in standards-aligned assessment design, evaluation, educational measurement, and psychometric research.

Suzanne Lane, Ph.D., is a professor in the Research Methodology Program at the University of Pittsburgh. She has had several articles published in academic journals such as the *Journal of Educational Measurement*, *Applied Measurement in Education*, and *Educational Measurement: Issues and Practice*. Her primary areas of expertise include educational psychology, educational measurement and testing, technical and validity issues related to large scale assessment programs, and the effectiveness of education and accountability programs.

Richard Lesh, Ph.D., is a professor of Learning Sciences, Cognitive Science, and Mathematics Education at Indiana University Bloomington. He is also affiliated with the Caput Center for Research and Innovation in STEM Education at the University of Massachusetts Dartmouth. Dr. Lesh has published numerous journal articles and book chapters and his research centers around assessment design in science and mathematics education, and computer-based curriculum development.

Mark Lyford, Ph.D., is a professor and the Director of the Life Sciences Program at the University of WY, as well as Special Assistant for Assessment and Accreditation for the Office of Academic Affairs. His main area of expertise is science education; specifically, he researches the impact of various pedagogical, curricular, and assessment practices on student learning. Dr. Lyford's current research projects focus on institutional models for scientific literacy, and incorporating 'desirable difficulties' into classroom pedagogy.

Ric Luecht, Ph.D., is a professor of Educational Research Methodology at the University of North Carolina at Greensboro, as well as a Senior Research Scientist with the Center for Assessment Research and Technology. Dr. Luecht specializes in psychometrics, item response theory, item design and analysis, test scoring, assessment engineering, computer-based testing technologies and systems design, automated test assembly, computerized-adaptive testing, and multistage testing.

Paul Nichols, M.S., serves as Superintendent of Mecklenburg County Public Schools in Danville, Virginia. Mr. Nichols has over 30 years of experience in education, and brings with him a broad range of expertise ranging from teaching, administration, and counseling, to private education consulting. Throughout his career, he has focused on topics such as career literacy, development, and training opportunities for students, college and career readiness, and educational technology.

Pamela Paek, Ph.D., is a researcher specializing in educational assessment, educational policy, and mathematics education at ACT, Inc. She has published several reports, journal articles, and book chapters over the course of her career. Her areas of expertise include educational assessment and measurement, mathematics education, research methods, evaluation research,

psychometrics, student achievement, metacognition, quantitative methodology, and professional development.

Jim Pellegrino, Ph.D., currently serves as co-director of Learning Sciences Research Institute and Distinguished Professor of Liberal Arts and Sciences and Education at the University of Illinois at Chicago. He has authored or co-authored over 270 journal articles, books, or book chapters in the fields of cognition, instruction, and assessment, and has supervised many large-scale research and development projects. His areas of expertise include cognitive science, psychometrics, educational technology, instructional practice, and educational policy.

David Pugalee, Ph.D., is a professor in the College of Education at the University of North Carolina at Charlotte, and serves as the Director of the Center for Science, Technology, Engineering, and Mathematics Education. His primary areas of expertise include mathematics and science education, curriculum development, and professional development. Dr. Pugalee has 34 years of experience as an educator, and has served as the principal investigator or co-principal investigator for several professional development projects.

Chapter 5 – Resources

SCILLSS partners are a unified team with a decade-long track record as substantive collaborators for complex and challenging projects. Dedication to this project from all SCILLSS partners, its goals, and outcomes is clear in the letters of commitment from each state and organization (see the Letters of Commitment attachment to the submission). Our collective partners include many of the most prominent thinkers today across multiple disciplines including principled-design, measurement, assessment literacy, and classroom practices, many of whom hold positions of great influence on the field. Our state partners, edCount, ACS Ventures, SRI International, and PIRE have built their capacities through "distance" partnerships, from

development through implementation and dissemination of conceptually and practically complex and challenging projects. We understand how to be high-tech and high-touch in high-level collaborative partnerships, an absolute requirement for successful completion of this project given the location of our state partners.

While each partner organization has a “home base or office,” many staff work remotely and telecommute except as necessary to meet in-person. Given this organizational structure for edCount, ACS, SRI, and PIRE, the resources are adequate and appropriate to conduct the work in remote locations across the country. On a daily basis, staff from each of the partner organizations virtually manage and achieve project and contractual obligations with ease. As the lead organizational partner, edCount has the necessary office equipment along with adequate office space at our central location to support administrative staff for the project.

Capacity of State and Organizational Partners

Given the reality that, despite different specific challenges, all SEAs are ultimately required to perform the same tasks and produce the same outputs, collaboration has been repeatedly identified as a realistic and practical means by which to surmount meeting the many demands on SEA time. In a 2008 symposium hosted by the Education Alliance at Brown University among educational leaders, researchers and policymakers (Unger et al., 2008), a major recurring recommendation was for increased collaboration among SEAs *and* partnership with external experts, consultants, and learning communities, to improve the organization and outputs of SEAs. The same symposium also yielded the recommendation that increased coherence among SEA procedures and internal policies would both lighten the loads of SEAs and likely improve the services they then provide to LEAs and schools. Therefore, the

collaboration outlined in the proposal only adds to the ability of SEAs to overcome the multiple demands and costs of meeting the many demands on SEA time.

In recent years, these recommendations from the 2008 symposium have come to fruition as SEAs joined together in collaborative efforts to meet their goals under NCLB, and now ESSA, while at the same maximizing efficiency and lowering costs. States are capitalizing on similar, and often overlapping, initiatives to develop rigorous CCR content and achievement standards, develop and implement valid and reliable next generation assessments, and meet additional requirements under ESEA flexibility waivers. By joining a consortium, or collaborative, such as SCILLSS, states have increased access to leading experts in the field, develop beneficial and long-lasting partnerships that can lead to future endeavors, and benefit from tools, resources, and enhanced expertise they can use to meet the needs of their own state plans and timelines.

In addition, all four of the organizational partners have established excellent national reputations for the type of work in which SCILLSS will engage them. These organizations have each built their capacities through a variety of partnerships with SEAs, LEAs, universities, and other business entities and have well-established track records of success for development, implementation, and dissemination of complex and challenging projects. They have well-developed infrastructures for communication, teleconferencing, networking, and other distance technologies and understand that both technology and communication are critical in high level collaborative partnerships. This partnership not only leverages individual and organizational excellence for SCILLSS, but represents true diversity by directing 88% of the sub-contract value to small businesses and 70% of this to a woman-owned small business.

We also pledge to create meaningful opportunities for persons from traditionally underrepresented groups, including those with disabilities, in the employment of project staff and

experts, in the composition of our state members' widely varying demographic and cultural profiles, and involvement of teachers, parents, and others in stakeholder groups from design to implementation. We will provide the accommodations needed for full participation including interpreters for staff, partners, and stakeholders who have disability or English proficiency needs. We will ensure the project website will include relevant information and documents in a format that meets a government or industry-recognized standard for accessibility.

edCount, LLC, is a federally-registered woman-owned small business and a certified Woman-owned Business Enterprise. Since its founding in 2003, edCount has provided direct or advisory services in K-12 assessment to all 50 states and seven US territories through projects funded via both competitive and sole source opportunities ranging from \$10,000 to over \$3,000,000 annually. As an independent small business that does not offer operational testing services, edCount staff members have extensive, unbiased experience assisting SEAs and LEAs with the evaluation of their assessment systems and their technical documentation; the establishment of processes and procedures for evaluating assessment systems; the provision of professional development; external and ED reporting; and the coordination of multi-state collaborative work groups.

edCount has designed and conducted dozens of studies to evaluate the validity and alignment of assessment systems, as required by ESSA. These studies have involved the content, internal structure, external relationship, response process, and consequential sources of validity evidence. Most recently, edCount has designed and conducted all of the assessment validity studies for the NCSC Alternate Assessment system, as well as produced technical documentation information to support the system's validity argument. edCount is also currently involved in conducting alignment and validity studies of Alaska's Comprehensive System of Assessments,

the Georgia Milestones Assessment System, and just a little over a year ago conducted an independent evaluation of the psychometric validity of the Florida State Assessment System. edCount is regarded as a leader in the evaluation of assessment systems due to the expertise and skills of its staff.

Further, edCount staff is highly skilled in the creation of organized and accessible reports and in engaging multiple partners for complex projects. Its experience with SEA and LEA staff allows for unique insights into the demands its clients face and their needs to communicate complex information to a wide-range of stakeholders. As a result, edCount ensures that reports and documentation are accurate, accessible, and designed to address the specific purposes of the clients.

edCount has a wide range of clients and partners that recognize edCount's contributions to improving assessment quality across the country. These include, but are not limited to, ED (including the offices of English Language Acquisition, Planning, Evaluation and Policy Development, Special Education and Rehabilitative Services, Elementary and Secondary Education, and the National Center for Education Statistics); The Laurent Clerc Center at Gallaudet University; The National Alternate Assessment Center at the University of Kentucky; The Education Alliance at Brown University; Pearson; Thompson Publishing; the Council of Chief State School Officers; and the National Center for the Improvement of Educational Assessments.

ACS Ventures, LLC (ACS) is an assessment consultation services organization that focuses on design, quality assurance, and operational support for programs in education (e.g., PK-12, admissions, adult education, language testing), and credentialing (e.g., licensure, certification, registration, and assessment-based certificates).

Key staff members have provided psychometric consultation; consulted on program design; evaluated and audited programs; developed validation frameworks; and conducted test development and validation projects (e.g., practice/job analysis, blueprint development, item development, item and form analysis, forms assembly, standard setting and equating, security analysis) for small- and large-scale testing programs of national and international scope.

Within education, these programs have included early childhood, adult learning, language competency, and state level student achievement for general assessments, alternate assessments, English language proficiency, and end-of-course assessments. ACS's staff members have designed and implemented a number of psychometric evaluations of educational and credentialing testing programs for national (e.g., *National Assessment of Educational Progress*, Western Governors University, National Commission for Certification of Physician Assistants) and state level programs (e.g., WY State Board of Education, Florida Board of Bar Examiners, Oklahoma Office of Educational Quality and Accountability). In addition, senior staff members proposed to lead this project have contributed to the professional community specifically on the topic of assessment program evaluation (e.g., Wiley, 2015; Buckendahl, 2015; Buckendahl, Plake, & Davis, 2009; Buckendahl & Plake, 2006).

Beyond practice, ACS is committed to contributing to the science and practice of testing through research and professional service. Staff members serve in leadership positions for professional organizations, as editors and contributors to peer-reviewed journals, book contributors, and as presenters for a number of organizations including the American Educational Research Association (AERA), National Council on Measurement in Education (NCME), Association of Test Publishers (ATP), Institute for Credentialing Excellence (ICE), International Test Commission (ITC), and the National Conference on Student Assessment

(NCSA) sponsored by the Council of Chief State School Officers (CCSSO). Common themes of this applied research have focused on inquiries about validation framework development, alignment, standard setting, security, repeat examinees, performance testing, testing policy, and legal issues.

The Pacific Institute for Research and Evaluation (PIRE) is a 501(c)3 independent nonprofit organization founded in 1974, with approximately 300 employees (www.pire.org). PIRE's strength relies on merging scientific knowledge and proven practice to create solutions that improve the health, safety, and well-being of individuals, communities, and nations around the world. For over 30 years, PIRE has been a leading private, not-for-profit research institute conducting studies in the areas of school-based interventions, child development, public health, substance abuse prevention, and related problems.

PIRE has sufficient technology to participate in virtual meetings across the country. PIRE has a Federal-wide Assurance (#FWA00003078) on file with OHRP (Office for Human Research Protections), which formalizes the institution's commitment to protecting human subjects. PIRE is committed to cultural competence and diversity in staffing, in designing research and in planning technical assistance. PIRE researchers and program directors publish more than 200 peer-reviewed journal articles annually.

SRI International is a research institute conducting client-sponsored research and development for government agencies, commercial businesses, foundations, and other organizations for 66 years. SRI International's strengths include their staff's expertise and passion for working with clients on important challenges. SRI is well known for its legacy of innovations in communications and networks, computing, artificial intelligence, economic development and science and technology policy, education, energy and the environment,

engineering systems, pharmaceuticals and health sciences, homeland security and national defense, materials and structures, and robotics.

SRI Education harnesses a diversity of expertise from multiple research centers to meet the unique needs of each client. *SRI Education* is a leader in providing professional development for teachers and designing formative and summative assessments using evidence-centered design, universal design for learning and state-of-the-art assessment models aligned to Common Core standards. SRI assessment experts are experienced in generating high quality assessments and scoring rubrics, documenting the development processes, and conducting validation studies to support accurate decisions. This work is accomplished in partnership with government and educational agencies, foundations, commercial firms and international clients around the world. SRI assessment researchers are invited presenters at national conferences and summits, such as those hosted by the Council of Chief State School Officers (CCSSO), the American Educational Research Association (AERA) and the National Council of Measurement (NCME). Their work has been funded by ED, the National Science Foundation, the Institute of Education Sciences, the Education Testing Service, NCS Pearson, CTB McGraw-Hill, various State Departments of Education, the Intel Corporation, and the Bill and Melinda Gates Foundation.

Chapter 6 – Management Plan

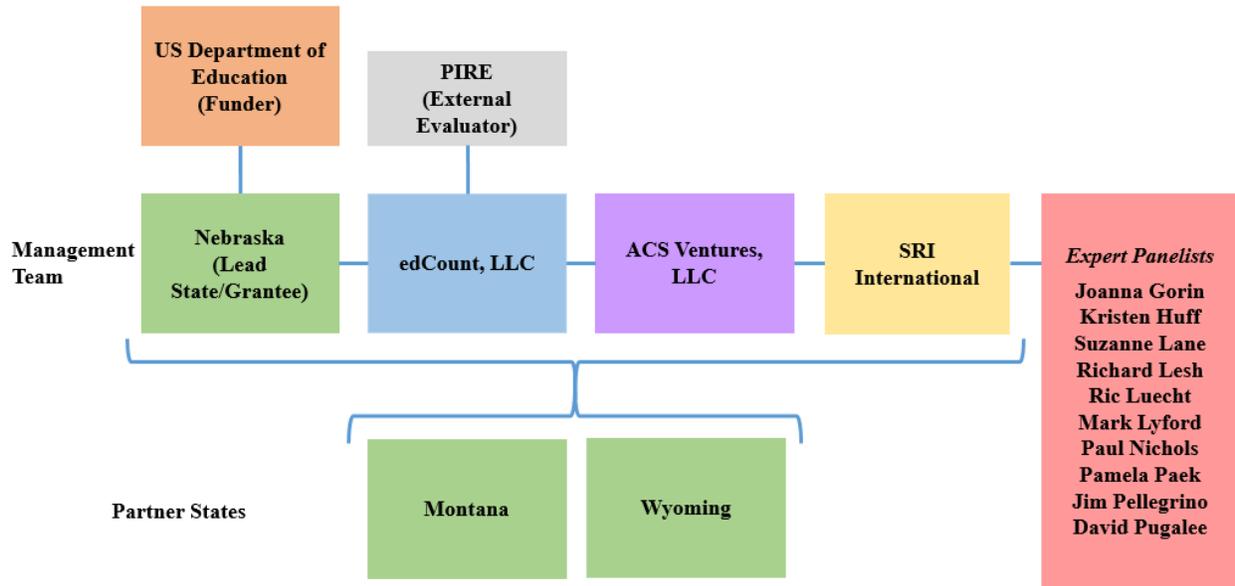
In Chapter 1, we established the specific state needs addressed through the SCILLSS project; and while our organizational partners have long supported states in establishing evidence of technical quality, none are directly involved with test development activities resulting in an ideal collaborative to address the four absolute priorities for the SCILLSS project. The SCILLSS project includes three partner states and four partner organizations. NE is the lead SCILLSS state; edCount will serve as the primary contractor to NE. The other organizations will serve as

subcontractors to edCount. With regard to roles and responsibilities, edCount and ACS will share in the substantive activities, SRI will provide principled-design expertise, and PIRE will provide external project evaluation services for SCILLSS.

In Exhibit 3, we illustrate the relationships among the state and organizational partners. Dr. Valorie Foy will serve as senior advisor and state lead and Drs. Forte and Buckendahl will serve as co-principal investigators. The project management team also includes Dr. Towles, who will serve as the project director, Ms. Buchanan, who will serve as the deputy project director and reporting lead, and Dr. Greninger, who will serve as assessment literacy specialist.

The management team will evaluate attainment of goals outlined in Phases 2, 3, 4, 5, and 6, monitor timelines, ensure production of high-quality deliverables, identify barriers and solutions to problems encountered by the project (including conducting a risk review with mitigation plans, as needed, during quarterly meetings), and ensure that the research-to-practice efforts honor the contributions, insights, needs, and unique concerns of all partners. They will meet virtually monthly, with one in-person annual meeting each year in conjunction with a full state and organizational partner in-person annual meeting. The full project team (including all state and organizational partners) will meet virtually 2-4 times per year, and each state's lead will attend the in-person annual meeting. In addition, we designed this project to include as its fourth year, a time to check for understanding and usefulness and to focus on dissemination. These activities are often left to the nebulous "post project" period and may not get the attention they require.

Exhibit 3. Relationships among State and Organizational Partners



The project director and deputy project director will meet by phone quarterly with each state partner to monitor progress, identify potential barriers, anticipate state unique needs as the work unfolds, and address state concerns throughout the project cycle. They will report back to the management team on the status and refer common issues to the management team as appropriate, work directly with state partners and the external evaluators to monitor and report status of goals and timelines while working with the management team to smooth and integrate cross partner efforts, and provide oversight to partner organization subcontracts.

The external evaluators will ensure that project activities are completed in a timely manner with high quality and that proposed goals have been achieved within timelines set forth by the project. PIRE, a leading national evaluation and research firm (www.pire.org), will serve as external evaluator, with Dr. Brent Garrett as lead evaluator and Dr. Matt Courser supporting Dr. Garrett. PIRE will work in conjunction with the management team to ensure external evaluation activities are coordinated with minimal burden to state partners.

Chapter 7 – Project Evaluation

Our evaluation plan will ensure that activities and final deliverables meet project goals, are of high quality, and are completed within the timelines of the grant. The lead evaluator for the project, Dr. Brent Garrett, and his colleague Dr. Matt Courser, of PIRE, will evaluate processes, products, and results throughout the implementation of the project to allow for the formative feedback to guide decision-making and product development and refinement. Dr. Garrett will provide this feedback as part of the monthly management team meetings and through established reporting channels.

(i): The extent to which the methods of evaluation are thorough, feasible, and appropriate to the goals, objectives, and outcomes of the proposed project.

The ToA will be developed in Phase 2 (see Exhibit 2) to illustrate the clear and logical connections between activities addressing assessment quality, score interpretation and use, and subsequent consequences. To ensure coherence between the project and its evaluation, the ToA will be used to guide the development of the evaluation plan. Strategies for collecting and analyzing data to assess the project’s impact on the outcomes are presented in Exhibit 2.

Below, we list the instruments we will use to collect formative and summative data. We will develop surveys, conduct interviews, and use other tools to gather quantitative and qualitative data to gauge project effectiveness. All instruments and procedures will be developed, tested, and implemented in accordance with standard evaluation protocols (Fowler, 2002; Dillman, 1999; Krueger & Casey, 2000). **SCILLSS formative data collection instruments** include:

1. **Meeting Minutes:** Formative data on project meetings and activities.

2. **Online Meeting Evaluation Surveys:** Used to gather data about the quality and impact of Expert Panel meetings and management team meetings.
3. **Stakeholder Interviews:** Used to gather more in depth data from key stakeholders on the quality, relevance, and usefulness of SCILLSS activities;

Summative Evaluation Data Collection Instruments

4. **Stakeholder Surveys:** Used to gather data from key stakeholders (state and local assessment and instructional personnel, expert panel members), on quality, relevance, usefulness, and impact of training, project materials and resources provided;
5. **Stakeholder Interviews:** Used to gather more in-depth data from key stakeholders on the impact of SCILLSS activities on ToA outcomes;
6. **Technical Documentation Reviews:** In conjunction with the expert panel, review documentation for quality, relevance, and usefulness, and expected impact for SEAs;
7. **State Assessment Data and College and Career Readiness Data:** Used to assess the long-term impact of SCILLSS phases and activities.

Methods

Quantitative survey data will be analyzed using frequency and descriptive statistics. Qualitative data from surveys and interviews will be analyzed through inductive theming, so that responses are organized in a clear, easy to use manner for project staff and partners. Document reviews will be used to assess the quality, relevance, and utility of formative data such as meeting minutes and communication with stakeholders, as well as more summative data contained in technical documentation. The external evaluator will work closely with project and state partners to assess the impact of SCILLSS activities on state assessment and CCR data.

(ii): The extent to which the methods of evaluation include the use of objective performance measures that are clearly related to the intended outcomes of the project and will produce quantitative and qualitative data to the extent possible.

As shown by the potential sample of performance indicators in Exhibit 4, objective performance measures are directly linked to the phases and intended outcomes of the project. Further performance measures will be developed and shared with SCILLSS project management for program improvement and with ED for accountability purposes.

Exhibit 4. SCILLSS Performance Measures

Performance Measures
Share findings with SEA staff in non-participating states & to assessment researchers (Phase 6). (GPRA)
Submit significant assessment research, methodologies, products, & tools (Phase 6). (GPRA)
State partners/expert panel members report (1) clear articulation between the target skills/concepts for both instruction & assessment, (2) high quality processes, tools, & resources for instruction & assessments, & (3) strong connections between instruction & assessments (Phases 3-6). (Assessment Quality)
Stakeholders report (1) assessment scores are interpretable, (2) clarity in claims-based instruction and classroom assessment, & (3) they were collaboratively engaged (Phases 1-5). (Score Interpretation)
Administrators & policy makers report that (1) measurement scores were used appropriately via improved reporting and (2) test selection and use was efficient in local systems (Phases 2-5). (Score Use)
State partners & expert panel members report coherence in relationships among (1) standards, instruction, and assessment & (2) components in assessment systems (Phases 2-6). (Consequences)

(iii): The extent to which the evaluation will provide performance feedback and permit periodic assessment of progress toward achieving intended outcomes.

Project evaluators will be active members on the project management team, using an inclusive evaluation model, instead of the traditional approach where evaluators remain distant (Perry, Thomas, DuBois, & McGowan, 2006). We will capitalize on the expertise of our external evaluators by 1) learning more about how to use and incorporate data into our work, and 2) informing our policy decisions with high quality data available (Grob, 2006).

It is essential to have high quality data that are available in a timely manner. Our intent is to ensure that policy enables practice and practice informs policy. To do this, the external evaluators will submit quarterly reports to project management, which will be incorporated into the quarterly project reports for ED. These reports will be based on data from the aforementioned data collection tools. The quarterly reports will be aggregated to form the basis of the Annual Performance Reports (APR) required by ED. Annual reports will summarize the formative data from throughout the year and provide annual summative and cumulative data. Other reporting will occur as needed, such as formative reports on the quality and impact of training and support provided to project partners.

(iv) The extent to which the evaluation will provide guidance about effective strategies suitable for replication or testing in other settings.

We have proposed multiple methods for assessing the effectiveness of project implementation strategies on impacting our intended outcomes. These include: 1) surveys and interviews with state partners, the SCILLSS management team, expert panel members, and state and local assessment and instructional personnel, 2) existing state and local level assessment and CCR data, 3) technical documentation, and 4) formative data including satisfaction surveys with

state partners, meeting evaluation data, meeting notes, and other project artifacts. These data will quantitatively and qualitatively assess overall project effectiveness, but will also provide foundational data for further testing and replication in other states.

The evaluation data will provide guidance about effective strategies suitable for replication or testing in other settings. We intend to use a *learning orientation* approach to evaluation (McLaughlin, 2001) to guide our learning and replication efforts: 1) *what factors are influencing emerging outcomes and in what ways*, 2) *what factors are influencing final outcomes and in what ways*, 3) *what factors in the context or implementation environment of our initiatives may have influenced success – positively or negatively*, and 4) *what unintended effects are occurring or have occurred?*

The evaluation plan is designed to be as minimum of a burden as possible on the states. On-going data will be gathered from state and organizational partners to assess how well the aims of 1) inter-state collaboration, 2) active engagement of highly regarded experts, and 3) hands-on assistance to support states' active involvement are met. The following questions will be a component of all state partner interviews. By better understanding the impact on SEA and LEA personnel, we will be better positioned to support further replication efforts: 1) *Has the project maximized opportunities and the effectiveness of opportunities for states to network and collaborate with one another?* 2) *Has the project maximized the meaningfulness and usefulness of input from the Expert Panel and other outside resources?* 3) *Has the project maximized the accessibility and usefulness of resources for SEA and LEA staff?*

Curriculum Vitae

Valorie J Foy, Ed.D
Director, Statewide Assessment and Accountability
Nebraska Department of Education

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Education

- Ed.D in Curriculum and Instruction from University of Nebraska, Lincoln: 2005
 - Study Emphasis- Educational Research Curriculum and Instruction
- M.A. from the Bread Loaf School of English, Middlebury College: 1985
 - Study Emphasis- Education-English Language Arts
- B.A. from State University of New York, Oswego: 1973
 - Study Emphasis- Education Secondary English Language Arts
- Graduate and undergraduate credits from Boise State University (Boise, ID), University of Montana (Missoula), Hamline University (Minneapolis, MN), and Chadron State College (Chadron, NE)

Additional Endorsements

- Six-Year Certification in Educational Administration through University of Nebraska, Lincoln: 2011
- Assessment Leadership through University of Nebraska, Lincoln: 2007

Professional Experience

- Director of Assessment, Nebraska Department of Education: 2012-present
- Assistant Superintendent, Director of Instruction, Crete Public Schools: 2006-2012
- Director of Instructional Services, Alliance Public Schools: 2000-2006
- Advanced Placement, journalism, language arts instructor, Alliance High School: 1986-2000
- Adjunct Faculty, Nebraska Western College: 1987-2001
- Teacher of English, Weiser High School; Weiser, Idaho: 1976-1986
- Teacher of English, Superior High School; Superior, Montana: 1973-1975

Presentations

- Co-presenter of *Closing the Achievement Gap through Assessment Literacy* at the **National Conference on Student Assessment (NCSA)**: Philadelphia, PA- June 2016
- Co-presenter of *Getting an Early Jump on Results through Formative Use of Data* at the **National Conference on Student Assessment (NCSA)**: New Orleans, LA- June 2014
- Lead Presenter- Key Note Accountability Task Force Team Presentation at AQuESTT: Spring 2015 Conference

- Presentations at state conference-Administrator Days: Kearney, NE, 2012, 2013, 2014, 2015
- Co-Presenter at Women in Educational Leadership Conference, University of Nebraska, Lincoln: October 2011

Publications

- **Foy, Valorie.** (Fall 2014 Edition). NeSA Transition: Based on a Solid Foundation. *NCSA Today: A Publication of the Nebraska Council of School Administrators*, p. 2.
- **Foy, Valorie.** (Spring 2013 Edition). Nebraska School District Accountability 101. *NCSA Today: A Publication of the Nebraska Council of School Administrators*, p. 4.

Education**Ph.D. Educational Psychology, 1996**

University of Iowa

M.A. Educational Psychology, 1994

University of Iowa

B.A. Physical Education & Dance, 1987

University of Iowa

**Present
Position****CEO & Chief Scientist, edCount, LLC***2003 – present*

Founder edCount, LLC, a professional services firm specializing in education assessment, evaluation, data management, reporting, and accountability.

Major projects and clients include:

State General and Alternate Assessment System Design (ongoing) – Serve as Chief Scientist for several statewide assessment design and development project in New York, California, Tennessee, and Mississippi. Focus on construct and content coherence in item and test design to ensure strong alignment throughout the systems.**National Centers and State Collaborative Alternate Assessment Project**

(September 2010 – 2015) – Served as the Chief Validity Evaluator for a federally-funded project to develop an innovative system for supporting educators who work with students with significant cognitive disabilities through professional development modules, curriculum and instruction resources, and assessment tools.

The Administrators' Guide to Federal Programs for English Learners (May 2010, 2nd edition in press) – Wrote the first comprehensive publication on the legislative, regulatory, case law, and guidance foundations for the full range of federal requirements for serving English learners at the state and local levels. This nationally-distributed book was commissioned by Thompson Publishing and is under revision through LRP.**Puerto Rico Policy and Technical Assistance Project** (January 2010 – 2014) – Served as the Principal Investigator for a comprehensive system of supports for the Puerto Rico Department of Education that encompasses validity studies; policy development for Titles I and III; professional development for general educators and special educators; and the development and implementation of curriculum supports that integrate content with considerations for full access to the content for students with disabilities and students with limited Spanish proficiency.**Language Instruction Educational Programs (LIEPs): Lessons from the Research and Profiles of Promising Programs** (September 2010 – July 2012) – Serve as the Principal Investigator for a federally-funded project to explore the definitions and implementation of programs designed to support English learners' acquisition of English language proficiency and academic achievement. This study encompasses a major review of literature on LIEPs, up to twenty case studies of LIEPs implementation across the nation, and the production of a guide to LIEPs, their implementation, and their evaluation.

Evaluating the Validity of English Language Proficiency Assessments (October 2009 – September

2011) – Serve as Principal Investigator for this project funded by an Enhanced Assessment Grant Award of \$1.6M by the Office of Elementary and Secondary Education at the U.S. Department of Education to the Office of the Superintendent for Public Instruction for the State of Washington. This project brings five state education agencies (Washington, Oregon, Indiana, Montana, and Idaho), five partner organizations (edCount, LLC, the National Center for the Improvement of Educational Assessment, UCLA, Synergy Enterprises, Inc., and PIRE), and twelve nationally recognized experts in validity theory and second language acquisition together to develop an argument-based approach to validity evaluations for the statewide English language proficiency assessments required under Titles I and III of NCLB.

National Evaluation of Title III (October 2008 – September 2011) – Serve as Senior Advisor to the first federal National Evaluation of Title III. Support for this project includes management of a comprehensive literature review related to English language acquisition policy and practices as well as analysis of English language proficiency (ELP) standards, assessments, and supporting practices in all 50 states, the District of Columbia, and Puerto Rico. Supervise collection, synthesis and analysis of data for final report on standards. Provide assistance in creation and execution of protocols to collect information from state-level administrators of Title III programs.

Laurent Clerc National Deaf Education Center at Gallaudet University (March 2008 – Present) – Chief Policy Advisor for the implementation of standards, assessment, and accountability systems under the 2008 Education of the Deaf Act. Assist Gallaudet University in establishing a partnership with the state of Ohio for sharing that state's academic standards and assessments. Provide technical assistance in the administration, scoring, and analysis of practice student assessment. Support administration and faculty in the interpretation and implementation of state standards and appropriate assessment practices for the Clerc Center student population.

State Departments of Education, State Boards of Education, and Legislative and Appointed Taskforces (multiple states including Delaware, Indiana, Connecticut, Georgia, Nebraska, Louisiana, Hawaii, Montana, Wyoming, South Dakota, Puerto Rico, District of Columbia, and others; 2003 to present) – Provide expert testimony, policy guidance, technical advice, evaluation, and other consulting services regarding the implementation of standards and assessment programs.

National Alternate Assessment Center (September 2007 – September 2011) – Serve as the lead evaluator for evaluations in the District of Columbia and Puerto Rico on validity issues associated with the alternate academic assessments for students with significant cognitive disabilities. These projects are funded through the University of Kentucky by a General Supervisory Education Grant from the US Department of Education.

US Department of Education (1998 – present) – Provide guidance and consulting services on standards, assessment, and accountability for the US Department of Education, Office of Elementary and Secondary Education. Served as a Peer Reviewer of state accountability systems under NCLB and chaired the consulting team that drafted the Standards and Assessments Peer Review Guidance for NCLB in early 2003. Currently involved in reviews of several state standards and assessment systems.

National Clearinghouse for English Language Acquisition (June 2008 – June 2009) – Co-Principle Investigator and Director of Assessment Services for the newly re-designed clearinghouse providing technical assistance support to state and local education agencies on behalf of the Office of English Language Acquisition at the U.S. Department of Education. Provided guidance and supported inter- state collaboration related to implementation of Title III requirements for English language proficiency standards and assessments, inclusion of English language learners (ELLs) in academic content assessments, accountability, program implementation, and professional development for ESL, bilingual, and foreign language educators.

Council of Chief State School Officers (1999 – 2008) – Consulted on assessment and accountability issues with representatives of state departments of education from across the country and coordinated the state collaborative on assessments for English Language Learners. Between 2003 and 2007, co-authored five major analyses of the state NCLB accountability workbooks and amendments and a monograph on the validity of state accountability systems. In 2002, wrote “A Guide to Effective Accountability Reporting”; a resource manual for state, district, and school personnel on the creation of effective education accountability reports that won the 2004 American Educational Research Association Division H Award for Outstanding Staff Assessment Training.

The Education Alliance at Brown (2004 – 2006) — Led the taskforce charged with developing policies, instruments, and practices for the comprehensive K-12 territory-wide assessment system for the US Virgin Islands. Worked in partnership with taskforces developing K-12 standards and accountability plans.

Prior

Director of Student Assessment, Baltimore City Public Schools 2002 – 2003

Professional Experience

Senior Research Analyst, American Institutes for Research 2000 – 2002

Education Consultant, Bureau of Student Assessment and Research, Connecticut State Department of Education 1997 – 2000

Project Director, National Evaluation Systems, Inc. 1996 – 1997

Professional Service & Honors

ACT, Inc. – Technical Advisory Committee Member

Educational Measurement: Issues and Practice – Editorial Board

Applied Measurement in Education – Editorial Board

Louisiana Department of Education – Technical Advisory Committee Member

Montana Office of Public Instruction – Technical Advisory Committee Member

South Dakota Department of Education – Technical Advisory Committee Member

Wyoming Department of Education – Technical Advisory Committee Member

National Council on Measurement in Education Newsletter – Advisory Board

Innovation Network – Board Member

American Educational Research Association Division D (Measurement) – Mentoring Committee

**Books,
Journal
Articles,
Book
Chapters, &
Monographs**

- Forte, E. & Bradfeldt-Waring, S. (in press). The administrator's guide to federal program for English learners, second edition. Washington, DC: LRP.
- Faulkner-Bond, M., & Forte, E. (2016). Assessing English learners. In C. Wells, & Faulkner-Bond, M. (Eds.), Educational measurement: From foundations to future. New York, NY: Guilford.
- Quenemoen, R., Flowers, C., & Forte, E. (2014). *The curriculum, instruction, and assessment pieces of the student achievement puzzle*. In More Language Arts, Math, and Science for Students with Severe Disabilities (Fred Spooner, Ed). Baltimore, MD: Brookes Publishing.
- Sireci, S. & Forte, E. (2012). *Informing in the Information age: How to communicate measurement concepts to education policy makers*. Educational Measurement: Issues and Practice, 31(2), 69-74.
- Perie, M. & Forte, E. (2011). *Developing a validity argument for assessments of students in the margins*. In M. Russell (Ed). Assessing Students in the Margins. Information Age Publishing.
- Forte, E. & Faulkner-Bond, M. (2010). The administrator's guide to federal program for English learners. Washington, DC: Thompson.
- Forte, E. (2010). *Examining the assumptions underlying the NCLB federal accountability policy on school improvement*. Educational Psychology, 45(2), 76-88.
- Erpenbach, W.J. & Forte E. (2007). *Statewide educational accountability under the NCLB Act—A report on 2007 amendments to state plans*. Washington DC: Council of Chief State School Officers.
- Forte, E. (January, 2007). *States' approaches to defining, measuring, and evaluating academic and linguistic skills of English language learners*. Washington DC: Council of Chief State School Officers.
- Forte, E. & Erpenbach, W.J. (2006). *Statewide Educational Accountability Under the NCLB Act—A Report on 2006 Amendments to State Plans*. Washington DC: Council of Chief State School Officers.
- Erpenbach, W.J. & Forte, E. (2005). *Statewide educational accountability under the NCLB Act—A report on 2005 amendments to state plans*. Washington DC: Council of Chief State School Officers, San Francisco, CA.
- Forte Fast, E. & Erpenbach, W.J. (2004). *Revisiting Statewide Educational Accountability Under NCLB: An Examination of States' Initial Requests for Amendment Under the No Child Left Behind Act of 2001*. Washington DC: Council of Chief State School Officers.
- Forte Fast, E. & Hebbler, S. (2004). *A framework for examining validity in state accountability systems*. Washington DC: Council of Chief State School Officers.
- Erpenbach, W.J., Forte Fast, E., & Potts, A. (2003). *Statewide educational accountability under NCLB: Central issues arising from an examination of state accountability workbooks and ED reviews Under the NCLB Act of 2001*. Washington DC: Council of Chief State School Officers.
- Forte Fast, E. (2002) *A Guide to Effective Accountability Reporting*. Washington DC: Council of Chief State School Officers and US Department of Education.

Vispoel, W.P. & Forte Fast, E. E. (2000). *Response biases and their relation to sex differences in multiple domains of self-concept*. *Applied Measurement in Education*, 13, 79–97.

Keynotes and Invited Presentations

Forte, E. (April, 2014). *Argument in action: Implementing validity theory in the real world*. Invited presentation for the AERA Special Interest Groups (SIG) on Professional Licensure and Certification; Test Validity Research and Evaluation; and Cognition and Assessment at the Annual Meeting of the American Educational Research Association, Philadelphia, PA.

Forte, E. (August, 2013). *Evidence centered design: Principles, applications, and implications*. Invited workshop for ACT staff. Iowa City, Iowa.

Forte, E. (June, 2013). *2013 Assessment Bootcamp – An Overview of the Practical and Technical Issues in Large-Scale Assessment Programs*. (Invited organizer and presenter.) Session presented at the Annual National Conference on Student Assessment, Washington, DC.

Forte, E. (November, 2007). *Assessment and accountability post-NCLB: The next generation*. Invited Keynote Address for the Annual Conference of the California Educational Research Association, Dana Point, CA.

Forte, E. (June, 2007). *Recent developments and growth in statewide accountability systems*. Invited discussant for session at the National Conference on Large Scale Assessment, Nashville, TN.

Forte, E. (January, 2007). *Current issues in statewide accountability under NCLB*. Invited Paper presented at the Annual Meeting of the National Association of State Title I Directors, Long Beach, CA.

Forte, E. (December, 2006). *Integrity and coherence in state accountability systems*. Invited Paper presented for the U.S. Department of Education Fall Accountability Summit. Nashville, TN.

Forte, E. (May, 2006). *Reporting of assessment results*. Invited panelist for technical assistance workshop for State Departments of Education staff sponsored by the U.S. Department of Education, the Assessment and Accountability Comprehensive Center, and CCSSO, Washington, DC.

Forte E. (May, 2006). *The next generation of statewide assessment systems: Replacing compliance with coherence and balance*. Keynote address for the Montana Statewide Assessment Conference sponsored by the Montana Office of Public Instruction and Montana State University, Helena, MT.

Forte Fast, E. (September, 2003). *Validity and reliability of state accountability systems*. Invited presenter and moderator at the Implementing Adequate Yearly Progress in States' Accountability Systems workshop for state education agency personnel offered by the Council of Chief State School Officers, St. Louis, MO.

Education

Ph.D. Educational Administration, 2011

Texas A&M University

M.S. Education, Psychological Services Program 2001

University of Pennsylvania

B.A. Psychology, 2000

Villanova University

**Present
Position**

Managing Associate and Teacher Quality Specialist, edCount, LLC

2010 – present

Contribute to edCount’s organizational objectives through intellectual engagement, technical expertise, and management of staff and company resources. Responsibilities include directing projects and managing the work of junior staff; planning and implementing methods, techniques, and skills to complete projects in a timely and cost-efficient manner; preparing high-quality reports and other outputs; developing corporate knowledge and knowledge of individual program areas and projects. Current and past responsibilities include:

Standards and Assessment Implementation Technical Assistance: Puerto Rico Department of Education – Serve as the Project Director for a comprehensive reform of standards, curriculum, assessment, and professional development activities in Puerto Rico. In 2013-14, led the K-12 standards revision, curriculum revision process, and the design and implementation of a comprehensive professional development academy for the core content areas of Spanish language arts, English as a Second Language, mathematics, and science. In 2010-12, designed the original curriculum development process and accompanying professional development, and created an aligned instructional coaching and PLC model. Provided oversight to a school culture study, planning for a web-based resource center, and oversight to data management issues. Contribute to the PRDE’s flexibility waiver application, implementation, and monitoring of flexibility initiatives.

Education for the Deaf Act (EDA) Implementation Technical Assistance: the Laurent Clerc National Deaf Education Center – Serve as the Project Director to support the Laurent Clerc Center’s efforts in curriculum and professional development and compliance with assessment and accountability regulations under *No Child Left Behind* (NCLB) and the *Education for the Deaf Act* (EDA). Plan and conduct standard setting and research studies to explore the validity of standards and assessment at the Clerc Center. Support administration and faculty in the interpretation and implementation of state standards and appropriate assessment practices for the Clerc Center student population, including transitioning to the Common Core State Standards.

Mid-Atlantic Regional Education Laboratory – Serve as project director for edCount’s REL-MA projects, providing leadership to a data governance workgroup and serving as the principal investigator for the Teacher Effectiveness Webinar Series and the Ask an Expert Online Chat Series. Contribute to planning and development of REL-MA initiatives.

Professional Experience

Director, Alternative Certification Program, Project Director, Texas Regional Collaboratives Science grant, College of Education, Texas A&M International University *2007 – 2009*

Managed federal funding and worked towards aligning program goals with objectives of the Transition to Teaching grant. This included: working closely with the State Board for Educator Certification, which governs Texas teacher certification; recruiting participants into the Alternative Certification Program through advertisements and outreach; retaining participants through ongoing support and training; collaborating with school district staff to hire and support teachers; managing funding and programmatic planning for science initiatives and professional development of science teachers as part of the Texas Regional Collaboratives science grant; compiling data to be submitted to the US Department of Education and University of Texas; overseeing daily operations of programs, including management of 2 full-time staff members, 8 part-time staff members, numerous contract employees, and approximately 400 program participants; leveraging human and fiscal resources by building strong relationships among stakeholders and funding agencies; and serving on the TAMU System ACP Advisory Council. Also contributed to an NSF grant proposal by writing the alternative certification component of a program aimed at increasing STEM teachers (2008); writing the proposal for continuation funding for Texas Regional Collaboratives science grant (2009); serving as a peer reviewer for the Transition to Teaching grant evaluation process (2009); and serving as a peer reviewer for the Teacher Quality Partnership grant competition (2009)

Second Grade Teacher, Borchers Elementary School, United Independent School District *2006 – 2007*

Taught second grade in a diverse public setting utilizing a district wide scope and sequence to structure planning and instruction. Instructed students using a thematic approach and assessed students using TPRI, running records, and individualized literacy assessments

First Grade Teacher, District 12/85, Public School 197, New York City Department of Education *2002 – 2006*

Taught first grade in a diverse public school setting utilizing the Balanced Literacy approach for reading and writing and the Everyday Math program. Instructed students using a workshop model across the curriculum and the Emotionally Responsive Practice model to handle student issues in a sensitive manner. Also, created and maintained student portfolios in both writing and mathematics, assessed students using ECLAS, running records, SAMS, and portfolios and represented first grade in the School Leadership Team.

Teacher, Lincoln Center For Family and Youth *2001 – 2002*

Taught elementary students in an alternative school program while utilizing behavior modification strategies to foster emotional development and utilized multiple intelligences models across the curriculum to teach a wide range of students.

Head Start Research, ECERS Project, University of Pennsylvania, Philadelphia, PA – Spring 2001

Received training in the use of the Early Childhood Educational Rating Scale and Assessed classrooms in Philadelphia's Head Start program (Spring 2001).

Professional Affiliations & Organizations

Association for Supervision and Curriculum Development (ASCD) – Member (2005 to present)
Phi Delta Kappa (PDK) – Member (2005 to present)
American Educational Research Association (AERA) – Member (2010 to present)
Texas Alternative Certification Association (TACA) – Member (2007 to 2010)
Kappa Delta Pi, Education Honor Society, Villanova University(1999 – 2000)

Honors & Awards

T.M. Stinnett Academic Fellowship Award-Texas A&M University, Education and Human Resource Development (November 2012)
First Place-Doctoral Level Paper Presentations; Grand Prize-Overall Graduate Presentations for *Teachers' Perceptions of Administrator Support and the Impact on Teacher Retention*. Lamar Bruni Vergara Research Conference, Texas A&M International University (April 2009)
Phi Delta Kappa Emerging Leader Award (2009 – 2010)
Lamar Bruni Vergara Scholarship (2009)
Jerry Melton Memorial Endowed Scholarship (2009)
John M. Skalski endowed graduate Scholarship (2009)
College of Education Excellence in Education Awards-Program Recognition for Alternative Transition to Teaching Program (2009)
Recognized as a Top Educational Leader Under 40 in *Scholastic Administrator* (February 2009)

Certifications

Commonwealth of Virginia, Postgraduate Professional License, Administration and Supervision Pre K-12 (2010)
Commonwealth of Virginia, Postgraduate Professional License, Elementary Education Pre K-6 (2010)
Texas Standard Certificate, Generalist (EC-4) (2007)
Texas Standard Certificate, Principal (K-12) (2007)
New York State Permanent Certificate, Elementary (K-6) (2007)
New York State Permanent Certificate, School District Administrator (2006)
New York State Permanent Certificate, School Administrator/Supervisor (K-12) (2006)

Publications & Presentations

Publications

Forte, E. & Greninger, E. (In Press). Designing Curriculum with the Individual Learner in Mind. *Procedia-Social and Behavioral Journal*.
Zwenger, N. & Greninger, E. (2012). Research: How it supports teaching and learning. *Odyssey (13)*, 4-7.

Doctoral Dissertation

Greninger, E. (2012). *The Role of an elementary school principal in the retention of novice teachers: A micropolitical case study*. Unpublished doctoral dissertation.

Research Reports

Greninger, E. & Forte, E. (2014). *The development of the Puerto Rico Core Standards*. Washington, DC: edCount, LLC, for the Puerto Rico Department of Education.
Forte, E. & Greninger, E. (2013). *Assessment summary report, reading, mathematics, and science, spring 2013*. Washington, DC: edCount, LLC, for the Laurent Clerc National Deaf Education Center.

- Forte, E. & Greninger, E. (2013). *Operational and technical manual, Ohio Achievement Assessments and Ohio Graduation Test, reading, mathematics and science*. Washington, DC: edCount, LLC, for the Laurent Clerc National Deaf Education Center.
- Forte, E. & Greninger, E. (2012). *Assessment summary report, reading, mathematics, and science, spring 2012*. Washington, DC: edCount, LLC, for the Laurent Clerc National Deaf Education Center.
- Forte, E. & Greninger, E. (2012). *Operational and technical manual, Ohio Achievement Assessments and Ohio Graduation Test, reading, mathematics and science*. Washington, DC: edCount, LLC, for the Laurent Clerc National Deaf Education Center.
- Greninger, E. & Rivera, A. (2012). *Supporting Teachers in the Implementation of a Standards based Curriculum: The Instructional Coaching Project and Communities of Practice in Puerto Rico*. Washington, DC: edCount, LLC, for the Puerto Rico Department of Education.
- Greninger, E. & Fung, M. (2012). *Using a Web-based Resource Center to Implement the Curriculum Project and Create a Virtual Community of Practice among Educators in Puerto Rico*. Washington, DC: edCount, LLC, for the Puerto Rico Department of Education.
- Forte, E. & Greninger, E. (2011). *Assessment summary report, reading, mathematics, and science, spring 2011*. Washington, DC: edCount, LLC, for the Laurent Clerc National Deaf Education Center.
- Forte, E. & Greninger, E. (2011). *Operational and technical manual, Ohio Achievement Assessments and Ohio Graduation Test, reading, mathematics and science*. Washington, DC: edCount, LLC, for the Laurent Clerc National Deaf Education Center.

Conference Presentations

- Greninger, E. & Fung-Angarita, M. (December, 2013). *Principal Leadership and School Culture: Improving Professional Learning*. Presentation at the Learning Forward Annual Conference, Dallas, TX.
- Forte, E. & Greninger, E. (October, 2013). *Designing Curriculum with the Individual Learner in Mind*. Presentation at the World Conference on Learning, Teaching, and Educational Leadership, Barcelona, Spain.
- Greninger, E. & Fink, L. (July, 2013). *Building a Learning Community From the Ground Up*. Presentation at the Learning Forward Summer Conference, Minneapolis, MN.
- Greninger, E. & Venzant Chambers, T. (December, 2011). *The role of an elementary school principal in the retention of novice teachers: A micropolitical case study*. Presentation at the University Council for Educational Administration annual convention, Pittsburgh, PA.
- Greninger, E. (April, 2009). *Teachers' perceptions of administrator support and the impact on teacher retention*. Presentation at the Lamar Bruni Vergara Research Conference, Texas A&M International University.
- Greninger, E. (November, 2008). *Evaluating the effectiveness of organizational learning on school culture*. Presentation at the 6th TAMUS Pathways Student Research Symposium, Texas A&M University-Commerce.
- Greninger, E. (August, 2008). *The culturally proficient school: An implementation guide for school leaders*. Presentation at the International Conference on Language, Life, and Learning, Texas A&M International University.

Education

Ph.D. Educational Psychology, 2007

University of Kentucky

Developmental Disabilities Certificate, 2003

University of Kentucky

M.S. Education, 2000

University of Kentucky

B.A. Art and Psychology, *summa cum laude*, 1999

University of Kentucky

**Present
Position**

Principal Associate and Alternate Assessment Specialist, edCount, LLC

2009 – present

Provide substantive and managerial leadership on large-scale contracts and tasks. Design and manage research activities; pursue and procure contract and grant funding. Manage staff, budgets, and timelines to ensure that clients receive high-quality deliverables by specified delivery dates. Current and past responsibilities include:

Tennessee Summative Assessments in Science and Social Studies– Serves as Project Director for this project. Provides oversight of all related development and documentation activities for the TN alternate assessment in Science and Social Studies, including but not limited to: content standard prioritization for assessment, item development, item review for content, bias, and sensitivity, test design for the field test and alternate assessment in Spring of 2017 and beyond to 2020, and technical documentation for the alternate assessment in both content areas.

Mississippi Alternate Assessment Project – Serves as Project Director including oversight of item development and all virtual and in-person training with Mississippi educators.

National Center and State Collaborative (NCSC) General Supervision Enhancement Grant – Serve as Process Evaluator to document and analyze project implementation and operations, provide coordination of project management activities, and oversee the external project evaluation. The collaborative consists of five partner organizations, 18 states, and the six Pacific Rim entities.

Evaluating the Validity of English Language Proficiency Assessments (EVEA) – Served as Project Director, providing oversight and coordination of project management meetings, leadership for development of project instruments, management of grants and contracts, and oversight of administration and partnerships throughout project duration.

National Alternate Assessment Center (NAAC) General Supervision Enhancement Grant – Served as Project Director for edCount’s role as validity evaluation partner to the District of Columbia, including research coordination and design, reporting, and client management with D.C. Office of the State Superintendent of Education (OSSE).

Hawaii Validity Study – Served as Deputy Project Director for edCount’s validity work in Hawaii for the development of a new portfolio-based alternate assessment.

U.S. Virgin Islands Project – Served as Project Manager for technical assistance and alternate assessment reporting for U.S. Virgin Islands Department of Education, including: liaison between the Virgin Islands Department of Education and Keystone Assessment; supervision of production and design of alternate assessment reporting for students, schools, districts and

state (territory); project direction for Title I Peer Review assistance and submission; and design and final review of technical and interpretive guides to accompany reporting to various stakeholders.

Professional Experience

Research Coordinator, National Alternate Assessment Center Validity General Supervision Enhancement Grant, Lexington, Kentucky

2007 – 2009

Evaluator, National Center for Educational Outcomes General Supervision Enhancement Grant, Lexington, Kentucky

2007 – 2009

Director of Alternate Assessment Research, Project Coordinator, National Alternate Assessment Center (NAAC), Lexington Kentucky

2005 – 2009

Research and Evaluation Specialist for Inclusive Large-Scale Standards and Assessment (ILSSA) Grant, Interdisciplinary Human Development Institute, Center for Excellence in Developmental Disabilities

2004 – 2005

Research and Evaluation Assistant for Inclusive Large-Scale Standards and Assessment (ILSSA) Grant, Interdisciplinary Human Development Institute, Center for Excellence in Developmental Disabilities, Lexington, Kentucky

2002 – 2004

Evaluation Assistant, Mid-South Regional Resource Center (MSRRC), Lexington, Kentucky

May 2002 – September 2002

Evaluation Assistant for Virginia General Supervision Enhancement Grant (VA GSEG), Mid-South Regional Resource Center (MSRRC), Lexington, Kentucky

May 2002 – September 2002

Research Assistant for Including Students with Deaf-blindness in Large-Scale Assessment Grant, Interdisciplinary Human Development Institute, Center for Excellence in Developmental Disabilities, Lexington, Kentucky

2001 – 2002

Professional Affiliations & Organizations

American Educational Research Association (AERA) – Member (2003 – Present)

Division H AERA – Student Affiliate (August 2003 – August 2008)

National Council on Measurement in Education (NCME) – Member (2014-Present)

TASH – Student Affiliate (November 2003 – November 2008)

Breakthroughs in Inclusive Education Awards Committee for TASH – Committee Chair (March 2008 – 2010)

Council for Exceptional Children Assessment and Accountability Conference – Proposal Reviewer (July 2007 to present)

National Association of School Psychologists' Speakers Bureau – Member (August 2006 to present)

Kentucky Cabinet for Families and Children Foster Care Review – Board Member (February 2003 – February 2004)

Publications & Presentations

Peer Reviewed:

- Kleinert, H., Towles-Reeves, E., Quenemoen, R., Thurlow, M., Fluegge, L., Weseman, L., & Kerbel, A. (2015). Where Students with the most Significant Cognitive Disabilities Are Taught: Implications for General Curriculum Access. *Exceptional Children, 81*(3), 312-328.
- Kearns, J., Towles-Reeves, E., Kleinert, H., Kleinert, J., & Thomas, M. (2011). Characteristics of and Implications for Students Participating in Alternate Assessments Based on Alternate Academic Achievement Standards. *Journal of Special Education, 45*(1), 3-14.
- Musson, J., Thomas, M., Towles-Reeves, E., & Kearns, J. (2010). An analysis of state alternate assessment participation guidelines. *Journal of Special Education, 44*(2), 67-78.
- Kleinert, H., Browder, D., Towles-Reeves, E. (2009). Models of cognition for students with significant cognitive disabilities: Implications for assessment. *Review of Educational Research, 79*(1), 301-326.
- Towles-Reeves, E., Kearns, J., Kleinert, H., & Kleinert, J. (2009). An analysis of the learning characteristics of students taking alternate assessments based on alternate achievement standards. *Journal of Special Education, 42*(4), 241-254.
- Towles-Reeves, E., Kleinert, H., & Muhomba, M. (2009). Alternate assessment: Have we learned anything new? *Exceptional Children, 72*(2), 233-252.
- Towles-Reeves, E., Kleinert, H., & Anderman, L. (2008). Alternate assessments based on alternate achievement standards: Principals' perceptions. *Research and Practice for Persons with Severe Disabilities, 33*(3), 122-133.
- Towles-Reeves, E., Garrett, B., Burdette, P., & Burdge, M. (2006). What are the consequences? Validation of large-scale alternate assessment systems and their influence on instruction. *Assessment for Effective Intervention, 31*(3), 45-57.
- Towles-Reeves, E., Kampfer-Bohach, S., Garrett, B., Kearns, J.F., & Grisham-Brown, J. (2006). Are we leaving our children behind? State deaf-blind coordinators' perceptions of large-scale assessments. *Journal of Disability Policy Studies, 17*(1), 40-47.
- Towles-Reeves, E., & Kleinert, H. (2006). The impact of one state's alternate assessment upon instruction and IEP development. *Rural Special Education Quarterly, 25*(3), 31-39.
- Garrett B., Towles, E., Kleinert, H., & Kearns, J.F. (2003). Portfolios in large-scale alternate assessment systems: Frameworks for reliability. *Assessment for Effective Intervention, 28*(2), 17-28.
- Kleinert, H., Garrett, B., Towles, E., Garrett, M., Nowak-Drabik, K., Waddell, C., & Kearns, J. (2002). Alternate assessment scores and life outcomes for students with significant disabilities: Are they related? *Assessment for Effective Intervention, 28*(1), 19-30.

Book Chapters:

- Towles-Reeves, E. (2008). Alternate assessment: Leaving no child behind amidst standards based reform. In R. Mitchell & R. Johnson (Eds.), *Testing Deaf Students in an Age of Accountability*. Washington, D.C.: Gallaudet University Press.
- Kearns, J., Towles-Reeves, E., Kleinert, H., & Kleinert, J. (2009). Who are the children who take alternate achievement standards assessments? In B. Schafer & B. Lissitz (Eds.), *Alternate Assessments based on Alternate Achievement Standards: Policy, Practice, and Potential*. Baltimore, MD: Brookes Publishing.
- Kleinert, H., & Towles-Reeves, E. (2010). What we have learned from alternate assessment research and what we still need to know. In J. Kearns & H. Kleinert (Eds.), *Meaningful*

Outcomes for Students with Significant Cognitive Disabilities: Alternate Assessments on Alternate Achievement Standards. Brookes Publishing.

Research Reports:

- Towles-Reeves, E., Lewis, P., Wickham, D., Thomas, M., Flynn, S., & Jackson, L. (2008). *CATS online learner characteristics inventory report for the Kentucky department of education.* Lexington, Kentucky: University of Kentucky, Georgia Enhanced Assessment Grant.
- Towles-Reeves, E. & Kearns, J. (2007). *Alternate assessment impact survey for principals report.* Lexington, Kentucky: University of Kentucky, National Alternate Assessment Center.
- Kearns, J., Towles-Reeves, E., Kleinert, H., & Kleinert, J. (2006). *Learner characteristics inventory report.* Lexington, Kentucky: University of Kentucky, National Alternate Assessment Center.
- Towles-Reeves, E., & Kearns, J. (2006). *Alternate assessment impact survey report.* Lexington, Kentucky: University of Kentucky, National Alternate Assessment Center.

Instrument Development:

- Towles-Reeves, E., Lewis, P., & Wickham, D. (2008). *Learner Characteristics Inventory for Electronic Access to the General Education Curriculum.* Lexington, Kentucky: University of Kentucky, Georgia Enhanced Assessment Grant.
- Towles-Reeves, E. (2007). *Alternate assessment impact survey for principals.* Lexington, Kentucky: University of Kentucky, National Alternate Assessment Center.
- Kearns, J., Kleinert, H., Kleinert, J., & Towles-Reeves, E. (2006). *Learner characteristics inventory.* Lexington, Kentucky: University of Kentucky, National Alternate Assessment Center.
- Kearns, J., & Towles-Reeves, E. (2006). *Alternate assessment impact survey.* Lexington, Kentucky: University of Kentucky, National Alternate Assessment Center.

National Conference Presentations:

- Deters, L., Nebelsick-Gullett, L., Turner, C., Herrera, B., & Towles, E. (2016). *Evaluating the Degree of Coherence between Instructional Targets and Measurement Models.* Paper presented at the annual meeting of the National Council on Measurement in Education, Washington, DC.
- Nebelsick-Gullett, L., Deters, L., Herrera, B., Towles, E., & Turner, C. (2016). *The Alignment of Achievement Level Descriptors to Student Performance.* Paper presented at the annual meeting of the National Council on Measurement in Education, Washington, DC.
- Nebelsick-Gullett, L., Towles-Reeves, E., Perkins, A., Deters, L. (2015). *Evaluating the Quality and Impact of Items, Products, and Procedures: NCSC Writing Alternate Assessment based on Alternate Achievement Standards.* Paper presented at the annual meeting of the American Educational Research Association, Chicago, IL.
- Ahumada, A., Towles-Reeves, Flowers, C., & Hagge, S. (2014). *Measuring the Common Core State Standards for Students with Significant Cognitive Disabilities.* Paper presented at the annual meeting of the National Council on Student Assessment, New Orleans, LA.
- Herrera, B., Nebelsick-Gullett, Nixon, L., Ahumada, A., & Towles-Reeves, E. (2014). *Using Performance Standards in Next Generation Alternate Assessments: Connecting Instruction and Assessment.* Paper presented at the annual meeting of the National Council on Student Assessment, New Orleans, LA.

- Kearns J., Thurlow M., Towles-Reeves, E. (2009). *Who are the Students in Alternate and Modified Achievement Standards Assessments?* Paper presented at the annual meeting of the American Educational Research Association, San Diego, CA.
- Kearns, J., Thurlow, M., & Towles-Reeves, E. (2008). *Who are the students in alternate and modified achievement standards assessments?* Presentation at the Office of Special Education Programs (OSEP) Project Directors Meeting, Washington, D.C.
- Davies, S., Towles-Reeves, E., & Plake, B. (2008). *Standard setting approaches for alternate assessment: Building on our experiences and research.* Presentation at the Annual National Student Assessment Conference, Orlando, FL.
- Towles-Reeves, E., Kearns, J., & Stuck, J. (2008). *Understanding the learning characteristics of students taking alternate assessments.* Presentation at the Annual Council for Exceptional Children's (CEC) Conference. Boston, MA.
- Kleinert, J., Towles-Reeves, E., Kearns, J., & Kleinert, H. (2007, November). *Communication characteristics of students in alternate assessments based on alternate achievement standards.* Paper presentation at the annual conference of the American Speech-Language-Hearing Association (ASHA).
- Towles-Reeves, E., Kearns, J., Rogers, P., & Kennedy, S. (2007, June). *What do we really know about students taking alternate assessments based on alternate achievement standards.* Presentation at the Council for Chief State School Officers Annual Large-Scale Assessment Conference (CCSSO), Nashville, TN.
- Towles-Reeves, E., Kearns, J., Kleinert, H., & Kleinert, J. (2007, April). *Learner characteristics inventory: Describing the students taking alternate assessments judged against alternate achievement standards.* Paper presented at the annual conference of the American Educational Research Association (AERA). Chicago, IL.
- Towles-Reeves, E., & Wickham, D. (2006, November). *Crackerbarrel: How to appropriately teach students with significant cognitive disabilities in an age of accountability.* Presentation at the TASH Annual Conference, Baltimore, MD.
- Towles-Reeves, E., & Wickham, D. (2006, November). *NCLB and IDEA focus on grade-level curriculum and the role of alternate assessments.* Presentation at the TASH Annual Conference, Baltimore, MD.
- Burdge, M., & Towles-Reeves, E. (2006, April). *Teacher perceptions of one state's alternate assessment.* Poster presentation at the Council for Exception Children's (CEC) Annual Meeting. Salt Lake City, UT.
- Warlick, K., Towles-Reeves, E., Tindal, G., & Browder, D. (2005, July). *Issues in alternate assessments on alternate achievement standards.* Presentation at the Office of Special Education Programs (OSEP) Project Directors' Conference. Washington, D.C.
- Towles-Reeves, E. (2005, July). *Alternate assessments in 2010: What will we know, understand, and be able to do.* Poster presentation at the Office of Special Education Programs (OSEP) Project Directors' Conference. Washington, D.C.
- Towles-Reeves, E., & Burdge, M. (2005, April). *A multi-state examination of the consequential validity of alternate assessments.* Paper presented at the American Educational Research Association (AERA) Annual Conference. Montreal, Canada.
- Towles-Reeves, E., & Kampfer-Bohach, S. (2004, March). *Alternate assessment 101: What school psychologists should know.* National Association of School Psychologists (NASP) Annual Conference. Dallas, TX.

Education**M.S. Zoology, 1996**

University of Wyoming

B.S. Secondary Education – Science, 1998

University of Wyoming

B.S. Wildlife Conservation Management, 1990

University of Wyoming

**Present
Position****Senior Associate, edCount, LLC**

2011 – present

Contribute to edCount’s organizational objectives through intellectual engagement, technical expertise, and management of staff and company resources. Responsibilities include directing projects and managing the work of junior staff; planning and implementing methods, techniques, and skills to complete projects in a timely and cost-efficient manner; preparing high-quality reports and other outputs; developing corporate knowledge and knowledge of individual program areas and projects. Current and past responsibilities include:

Senior Advisor Assessment and Content Specialist, New York Department of Education –

Serve as developer of mathematics item specifications for grades 3 through 8 aligned to the New York State P-12 Common Core Learning Standards; served as a developer, facilitator, panelist, and contributor to technical documentation of alignment studies for mathematics and English language arts; provided expertise and guidance as a technical advisor on the assessment system and its contents.

Senior Advisor, Assessment Specialist, Studies of General and Alternate Assessment

Alignment – Serve as a facilitator, panelist, and developer of technical documentation of alignment studies for general and alternate assessments of English Language Arts, mathematics, social studies, and science for various entities including NCSC, PARCC, and several state departments of education.

Senior Advisor, Alternate Assessment and Content Specialist, California Department of

Education – Serve as a Senior Project Lead working to develop the California Next Generation Science Standards (NGSS) Core Content Connectors for use with the California NGSS Alternate Assessment Program. In addition, the Core Content Connectors, with attention to vertical and horizontal articulation, will be used to maintain fidelity to the California Next Generation Science Standards (NGSS); Performance Expectations defined for kindergarten through high school in classrooms serving the student population participating in the alternate assessment.

Senior Advisor, Alternate Assessment and Content Specialist, Tennessee Department of

Education – Serve as Senior Project Lead working to develop social studies and science alternate assessments for grades 3 – 8 and high school including determination of prioritized assessment content and development of the test design, test blueprints, item development guidelines, item development, and curriculum and instruction materials. Facilitated stakeholder meetings in both face-to-face and virtual settings. Developed a series of content modules for educators to support delivery of science and social studies instruction to provide appropriate levels of challenge and rigor to students with significant cognitive disabilities.

Senior Curriculum Advisor, Education for the Deaf Act (EDA) Implementation Technical Assistance: the Laurent Clerc National Deaf Education Center –Serve as senior curriculum advisor supporting the Laurent Clerc National Deaf Education Center’s efforts in curriculum and professional development and compliance with assessment and accountability regulations under No Child Left Behind (NCLB) and the Education for the Deaf Act (EDA). Assist with edCount’s work providing technical assistance to the Clerc Center as they transition to the Common Core State Standards, including curriculum alignment and professional development to support curriculum implementation.

Senior Curriculum Advisor and Assessment Specialist, National Center State Collaborative (NCSC) General Supervision Enhancement Grant – Serve as Senior Curriculum Advisor and Assessment Specialist working directly with UNC Charlotte on the mathematics and ELA content work for development of the curriculum and instructional resource materials; provide support and collaboration with assessment development teams and item writing/summative assessment vendors; participate in all management team, staff leadership team, and cross workgroup meetings; and coordinate with the validity evaluation team. Supported the development of content of technical documentation, standard setting performance level descriptors, student report descriptors, and multiple reports related to a variety of project-related activities.

Project Director, Charlotte-Mecklenburg Schools Item Development Project – Served as project director responsible for managing budget, staff, timelines, and quality for the creation of program evaluation tests in 32 subject areas for CMS. Managed the test construction process including item and blueprint development, item review, and production of test materials; managed item writers and liaised with CMS Executive Director of State and Federal Programs to ensure deliverables met client specifications.

Senior Curriculum Advisor, Puerto Rico Department of Education Curriculum Development – Served as senior curriculum advisor in the evaluation of materials created for the PRDE in the areas of K-12 mathematics and science curriculum development to improve educational standards and student achievement.

Senior Curriculum Advisor, Puerto Rico Department of Education Assessment Training Modules and materials – Served as senior advisor in the evaluation of materials created for the PRDE in the area of students with significant cognitive disabilities. The Assessment Training Modules and materials development for grades 3-11 are to improve educational opportunities and student achievement in the Pruebas Puertorriqueñas de Evaluación Alternativa (PPEA).

Director of Assessment, Wyoming Department of Education (WDE)

March 2011 – August 2011

Oversee and manage the Wyoming state assessment system with responsibility for budget, staff and vendor management. Provide state-wide trainings for district and higher education personnel on state laws and procedures pertaining to state assessment. Collaborate across WDE divisions to define business requirements, improve efficiency and functionality of core services, and implement new systems. Create, implement, and lead action plans and timelines for multiple initiatives. Additional responsibilities include membership on committees and advisory groups internal and external to WDE, acting as liaison between school districts, colleges, and state legislature, developing a program of research in collaboration with the Wyoming Technical Advisory Committee, publishing and presenting at professional conferences on issues affecting state policy and assessment.

Professional Experience

Director of Test Development and Research, Wyoming Department of Education (WDE)
2009 – 2011

Responsible for the implementation of the Wyoming state assessment system including: providing state-wide training for district and higher education personnel on state laws and procedures pertaining to state assessment; collaborating across WDE divisions to define business requirements, improve efficiency and functionality of core services, and implement new systems; creating, implementing and leading action plans and timelines for multiple initiatives; representing WDE at national meetings and forums and conduct state-wide workshops relevant to the assessment program; communicating with state legislature to ensure compliance of rules and regulations and conducting, interpreting, and reporting results of educational policy research. Served as co-investigator in federally-funded Enhanced Assessment Grants and General Supervision Enhancement Grants . Served as Co-Chairperson for AdvancEd (the parent organization for the North Central Association Commission on Accreditation and School Improvement (NCA CASI) and the Southern Association of Colleges and Schools Council on Accreditation and School Improvement) to gather information to be used as evidence that school is meeting the AdvancED standards for accreditation in Department of Defense overseas schools, 2010.

Assistant Director of Assessment, Wyoming Department of Education (WDE)
2007 – 2009

Managed test development activities and item/test analyses. Planned and supervised design of general and alternate assessments and resultant item banks. Evaluated production and quality control procedures and development of technical documentation for computer-based testing programs. Developed and monitored project management schedules and staffing plans. Wrote RFPs (Request for Proposals) and assessment development plans. Co-lead for development and administration of the Wyoming Alternate Assessment for students with the most significant cognitive disabilities. Developed test items, management of content and special education committees and coordination with Wyoming's test vendors (general and alternate assessments) in each stage of development. Created and presented professional development activities for implementation of the results from the state assessments to improve instruction and growth of student knowledge and skills. Implemented and supervised an English Language Proficiency assessment system in Wyoming to improve instruction for English Language Learners. Represented WDE at professional meetings.

Science and Mathematics Content Specialist, Wyoming Department of Education (WDE)
2004 – 2007

Lead staff in conceptualizing, designing, developing, and implementing the science and mathematics assessment program. Managed the test construction process including item and blueprint development, item review, and production of aligned test materials. Member of state-wide committee for the creation and implementation of a \$450 million state scholarship program with responsibility for state-wide trainings for district and higher education personnel on state laws and procedures pertaining to this scholarship.

Lecturer, Physics & Astronomy Department, University of Wyoming
2003 – 2004

Designed undergraduate classroom and laboratory activities. Planned and presented Wyoming Science Fair Activities. Member of committee to provide resources to Wyoming teachers to allow them to enroll in graduate courses at the University and to create learning modules which align with state standards to augment the current science curriculum.

**Adjunct Instructor – Mathematics and Science courses, Laramie County Community College
1999 – 2003**

Instructor for a variety of mathematics and science courses including Human Anatomy, Chemistry, Calculus, and Astronomy. Designed and implemented classroom and laboratory activities.

**Mathematics and Science Teacher – Whiting Alternative High School, Grades 9-12, Albany
County School District #1
1998 – 2003**

Provided instruction in a manner that met or exceeded the district math/science standards. Representative to the district technology committee and building technology coordinator. Participated in state-wide BOE (Bodies of Evidence) committees for the math and science curriculum and a member of the Cadre of Experts which developed the Wyoming Activities Consortium in support of the BOE.

**Professional
Affiliations &
Organizations**

National Council on Measurement in Education (NCME)

American Educational Research Association (AERA)

Council for Exceptional Children (CEC)

Council of State Science Supervisors (CSSS)

Association of State Supervisors of Mathematics (ASSM)

Council of Chief State School Officers – State Collaboratives on Assessment and Student Standards (SCASS):

Assessing Special Education Students (ASES)

Implementing the Common Core System (ICCS)

Technical Issues in Large-Scale Assessment (TILSA)

Member of Wyoming Mathematical Association of Two Year Colleges (WYMATIC)

Past member of The Wyoming School-University Partnership (University of Wyoming)

**Publications &
Presentations**

Herrera, A., Turner, C., Quenemoen, R., & Thurlow, M. (2015, November). NCSC's age- and grade-appropriate assessment of student learning. NCSC Brief, Number 6.

Davidson, A., Hagge, S., Herrera, B., Turner, C., Egan, K., Flowers, C., Quenemoen, R., & Thurlow, M. (2015, April). Incorporating accessibility and complexity concepts into test specification and anchor set selection for alternate assessments of alternate achievement standards. American Educational Research Association, Chicago, IL.

Flowers, C.P., & Herrera, B. (2015, April). Building from the ground up: A writing assessment story (Symposium: Writing for students with significant cognitive disabilities: It's more than just writing their names). American Educational Research Association, Chicago, IL.

Flowers, C., Herrera, B., Turner, C., Towles-Reeves, L., Davidson, A., Hagge, S., Thurlow, M., & Quenemoen, R. (2015, April). Developing a large-scale assessment using evidence-centered design: Did it work? National Council on Measurement in Education, Chicago, IL.

- Hagge, S., Davidson, A., Herrera, B., Turner, C., & Thurlow, M. (2015, April). Item construct maintenance when varying levels of support and complexity. National Council on Measurement in Education, Chicago, IL.
- Herrera, A. (2014, June). *Using performance standards in next generation alternate assessments: connecting instruction and assessment*. Presentation at the annual meeting of the Council of Chief State School Officers, New Orleans, LA.
- Herrera, A. (2014, June). *While this may be true, the stepping stones to transition are not enough*. Presentation at the annual meeting of the Council of Chief State School Officers, New Orleans, LA.
- Herrera, A. (2013, April). *Changing traditional item review processes to review ecd-based items*. (Symposium: *Everything changes: implementing evidence-centered design to address large-scale assessment challenges*. American Educational Research Association, San Francisco, CA.
- Wakeman, S., Turner, C., Herrera, B., & Lee, A. (2013, April). *Graduated understandings for instruction of students with significant disabilities: Movement toward common core state standards*. Presentation at the annual meeting of the Council for Exceptional Children, San Antonio, TX.
- Mueller, C., Herrera, B., & King, K. (2012) *Standards: Revisited, Re-evaluated, and just Refurbished*. Presentation at the annual meeting of the Association of Test Publishers Innovations in Testing, Palm Springs, CA.
- Kettler, R. J., Dickenson, T., Bennett, H.L., Beddow, P., Morgan, G., Gilmore, J., & Herrera, B. (April, 2011). *Enhancing the Accessibility of High School Science Tests: A Multi-State Experiment on AA-MAS Validity*. In press.
- Herrera, B. (2010). *In Pursuit of PAWS Instructional Sensitivity or...nothing specific or too very Scientific*. Presented at CCSSO, Detroit, MI.
- Turner, C. & Herrera, B. (2005 – 2010). *Technical Manuals for the Proficiency Assessments for Wyoming Students – Alternate*. Contributions on behalf of Wyoming Department of Education, Harcourt Assessment, Inc. and Questar Assessment, Inc. Internal Reports.
- Herrera, B. & Turner, C. (2005 – 2010). *Technical Manuals for the Proficiency Assessments for Wyoming Students*. Contributions on behalf of Wyoming Department of Education, Harcourt Assessment, Inc. and Pearson Assessment, Inc. Internal Reports.
- Karvonen, M., et al. (including B. Herrera) (2010). *Correlates of Student Performance on an Alternate Assessment based on Alternate Achievement Standards (AA-AAS): The Role of Learner Characteristics and the Instructional Program*. Presented at American Educational Research Association (AERA) Annual Meeting, Denver, CO.
- Herrera, B., Bechard, S., Almond, P., Karvonen, M., Wakeman, S., Turner, C., Bowen, T., Turner, L., & Flowers, C. (2009, June). *Hitting a Moving Target: A Discussion of Ten Alignment Studies for AA-AAS*. Presented at CCSSO, Los Angeles, CA.
- Karvonen, M., et al. (including B. Herrera) (2009). *Curriculum Alignment and Student Performance on an Alternative Assessment Based on Alternate Achievement Standards*. Presented at American Educational Research Association (AERA) Annual Meeting, San Diego, CA.
- Turner, C. & Herrera, B. (2009, June). State Academic Learning Links with Self-Evaluation for Alternate Assessment. Wyoming Contribution to SALLSA Newsletter, pp. 7-8.

Education

M.A. Curriculum and Instruction, 2006
Michigan State University

B.A. Elementary Education, minors in English and Geography, 2002
Michigan State University

**Present
Position**

Senior Associate, edCount, LLC
2013 – present

Contribute to edCount’s organizational objectives through intellectual engagement, technical expertise, and management of staff and company resources. Responsibilities include managing projects and managing the work of junior staff; planning and implementing methods, techniques, and skills to complete projects in a timely and cost-efficient manner; preparing high-quality reports and other outputs; and developing corporate knowledge and knowledge of individual program areas and projects. Current and past responsibilities include:

Project Manager: Mississippi Subject Area Testing Program Alignment Evaluation

Assist in the design and development of item review procedures, templates, and trainings to evaluate the alignment and validity of Mississippi’s Subject Area Testing Program (SATP2) in English II and Algebra I; conduct test-level analysis of alignment between blueprint, test form, and item specifications; conduct qualitative and quantitative analyses and develop report of findings.

Project Manager: New York State Assessment System Alignment Evaluation

Assist in the design and development of item review procedures, templates, and trainings to evaluate the alignment and validity of the New York State Assessment System in English language arts and mathematics at grades 3-8; conduct test-level analysis of alignment between blueprint and test form; conduct qualitative and quantitative analyses and develop report of findings.

Project Director: K-12 OER Collaborative

Led the development of a technology-enhanced curriculum package for grade 1 in English language arts. Created and monitored timelines, development processes and workflows, and consultant contracts. Developed and facilitated three full-day training sessions on a variety of topics including Understanding by Design, research-based literacy practices, the key shifts in the CCSS, text complexity considerations, learning progressions, differentiation, etc. Served as senior reviewer of all curriculum and assessment materials. Developed task models and templates for the development of digital, interactive components to the curriculum package.

Curriculum and Professional Development Specialist: Puerto Rico Department of Education

Managed the development of standards, curricula, and performance task assessments to support technical assistance for the Puerto Rico Department of Education. Developed and implemented trainings for contractors in the development of curricula and assessments using a backward design approach. Worked collaboratively with colleagues to develop an integrated assessment model using dichotomous scoring rubrics aligned to curriculum map standards and acquisition goals.

**Professional
Experience**

ELA Senior Content Specialist: Assessment and Information Division, Pearson
2011 – 2013

ELA Content Lead for The Partnership for Assessment of Readiness for College and Careers (PARCC) assessment, grades 3-8 passage development and grades 3-5 item development.

Coordinated and managed the development of passages and items. Provided senior review and approval of passages and items. Created passage development training and submission materials. Planned and facilitated remote and on-site passage and item development trainings with external vendors. Conducted ongoing bank analyses and implemented passage development plans. Facilitated remote and on-site passage and item review meetings with the PARCC Leadership Team and state educators. Developed commissioned reading passages and items and built test forms for the Florida Comprehensive Assessment Test (FCAT).

K-12 Language Arts Content Specialist: Standards and Assessment Division, Wyoming Department of Education

2008 – 2011

Consulted and coordinated with assessment vendor in development, refinement, and deployment of assessments and assessment items in the areas of reading and writing. Revised state writing scoring rubrics, grades 3-8 and 11. Developed item writing specifications and style guide for multiple choice writing items. Assisted assessment vendor in development of online scorer training system and response annotations. Developed and refined instruction and assessment resources for Wyoming educators.

Coordinated projects with the assessment vendor, including the Proficiency Assessments for Wyoming Students (PAWS) Ranges-finding Project, PAWS Writing Scoring Institute, PAWS Traffic Signal Project, and PAWS Item, Data, and Bias Reviews. Participated in the National Assessment of Educational Progress (NAEP) Reading and Writing Item Reviews, Washington, D.C. Participated in the PAWS-Alternate Reading and Writing Item Reviews.

Planned and facilitated statewide professional development workshops and annual meetings in reading and writing. Member of the Wyoming Standards Revision Steering Committee. Facilitated the revision of the Wyoming English Language Arts Content and Performance Standards.

Second Grade Teacher, Vera Ralya Elementary School

2007 – 2008

Awarded technology mini-grant for use of interactive Smart Board and projector in classroom. Member of the Language Arts and Social Studies District Curriculum Mapping Committees.

Grades 1-3 Teacher, Plymouth Elementary School

2004 – 2007

Worked collaboratively with team teaching partners to co-plan and co-teach units and lessons for three grade levels and various multi-age groupings. Assessed academic and social progress of 69 students.

Professional Affiliations & Organizations

National Science Teachers Association (NSTA)
Michigan Education Association (MEA)
Michigan Reading Association (MRA)
The Assembly of State Coordinators of English Language Arts (ASCELA)

Honors & Awards

ARC Award for Diversity and Creativity in the Classroom (2005)
Dean's List, Michigan State University (1998-2002)
Mortar Board National Society Member, Michigan State University (1998-2002)
National Society of Collegiate Scholars Member, Michigan State University (1998-2002)

Certifications

Michigan Professional Teaching Certificate (K-5 all subjects; 6-8 English; Geography; (K-2) MLPP Certification; DIBELS training)

CHAD W. BUCKENDAHL

Education

- 2000 Ph.D. – Quantitative and Qualitative Methods in Education
University of Nebraska, Lincoln, NE
- 1996 M.L.S. – Legal Studies
UNL College of Law, Lincoln, NE
- 1994 B.A. – Political Science
University of Nebraska, Lincoln, NE

Professional Experience

- 2016 – present Founding Partner
ACS Ventures, LLC; Las Vegas, NV
- 2007 – 2015 Director of Strategic Partnerships, Director of Education, Licensure, and
Professional Credentialing Services, Senior Psychometrician
Alpine Testing Solutions, Inc.; Las Vegas, NV
- 1998 – 2007 Director, Asst. Director, Research Associate
Buros Institute for Assessment Consultation and Outreach
University of Nebraska, Lincoln
- 1990-1997 Survey Researcher, Computer Programmer
The Gallup Organization, Inc.; Lincoln, NE

Professional Affiliations

- Association of Test Publishers
- Institute for Credentialing Excellence
- International Test Commission
- National Council on Measurement in Education

Service

- NCME (Membership Committee co-chair, 2004-05; Program Committee co-chair, 2005-06; Outreach Committee chair, 2007-08)
- Northern Rocky Mountain Educational Research Association (Executive Board member 2002-05; Program chair, 2002-03, President 2006-07)
- Editor – Journal of Applied Testing Technology (2008-2015)
- Associate Editor – Applied Measurement in Education (2006-2010)
- Reviewer – Applied Psychological Measurement, Applied Measurement in Education, Assessment in Education: Principles, Policies and Practice, Educational Assessment, Educational Measurement: Issues and Practice, International Journal of Testing, Journal of the American Dental Association, Language Assessment Quarterly

Selected Recent Publications

- Buckendahl, C. W. & Gerrow, J. (under review). Evaluating the impact of releasing an item pool on a test's empirical characteristics. *Journal of Dental Education*.
- Davis-Becker, S. L. & Buckendahl, C. W. (2013). A proposed framework for evaluating alignment studies. *Educational Measurement: Issues and Practice*, 31(1), 23-33.
- Buckendahl, C. & Davis-Becker, S. (2012). Setting passing standards for credentialing examinations. In G. J. Cizek (Ed.), *Setting performance standards: Foundations, methods, and innovations* (2nd ed., pp. 485-502). New York, NY: Routledge.
- Buckendahl, C. W. & Davis-Becker, S. L. (2012). The appropriateness and use of domain critical errors. *Practical Assessment, Research, & Evaluation*, 17(13), 1-12.
- Davis-Becker, S., Buckendahl, C., & Gerrow, J. (2011). Implications of random ordering on the bookmark standard setting method. *International Journal of Testing*, 11(1), 24-37.
- Buckendahl, C., Ferdous, A. & Gerrow, J. (2010). Recommending cut scores with a subset of items: An empirical illustration. *Practical Assessment, Research & Evaluation*, 15(6).
- Buckendahl, C. W., Plake, B. S., & Davis, S. L. (2009). Conducting a lifecycle audit of the National Assessment of Educational Progress. *Applied Measurement in Education*, 22(4), 321-338.
- Davis, S., Buckendahl, C. & Plake, B. (2008). When adaptation is not an option: An application of multilingual standard setting. *Journal of Educational Measurement*, 45(3), 287-304.
- Norman, R. & Buckendahl, C. (2008). Determining sufficient measurement opportunities when using multiple cut scores. *Educational Measurement: Issues and Practice*, 27(1), 37-46.
- Buckendahl, C. & Plake, B. (2006). Evaluating Tests. In S. Downing & T. Haladyna (Eds.), *Handbook of Test Development* (pp. 725-738). Mahwah, NJ: Lawrence Erlbaum Associates, Inc.

Selected Recent Presentations

- Buckendahl, C. W., Domaleski, C., Dogan, E., & Montoya, J. (June, 2015). Getting more from your technical advisory committee: Designing and implementing a validity research agenda. Presentation at the National Conference on Student Assessment. San Diego, CA.
- Buckendahl, C. W. & Foley, B. P. (April, 2015). Policy linking as cut score moderation: Considerations for practice. Paper presented at the National Council on Measurement in Education. Chicago, IL
- Buckendahl, C., Sharp, C., & Parton, C. (June, 2014). College-ready, career-ready, and graduation eligibility: Challenges for EOC assessments. Presentation at the National Conference on Student Assessment. New Orleans, LA.
- Buckendahl, C., Misner, R., Munson, L, & Rupp, S. (March, 2014). Singing for your supper: Are performance-based tests worth the price of admission? Presentation at the annual meeting of the Association of Test Publishers. Scottsdale, AZ.
- Buckendahl, C. (April, 2013). A practitioner's guide to validation framework development. Paper presented at the annual meeting of the National Council on Measurement in Education. San Francisco, CA.

Susan Davis-Becker

Education

May 2005	Ph.D. - Assessment and Measurement James Madison University, Harrisonburg, VA
May 2002	M.A. - Psychology James Madison University, Harrisonburg, VA
May 2000	B.A. - Psychology Salisbury State University, Salisbury, MD

Professional Experience

2016-Current	Founding Partner ACS Ventures Responsibilities: Provide design, operational support, and evaluation services to credentialing and educational testing organizations. Contribute to business oversight, management, and business development.
2007–2016	Director of Professional Credentialing, Senior Psychometrician, Psychometrician Alpine Testing Solutions Responsibilities: Oversee all consultation work for professional credentialing clients, provide psychometric services for assessment programs in education, licensure, and certification including program design, content specification, content development and evaluation, data analysis, and evaluation.
2004 –2007	Assistant Director, Project Coordinator Buros Institute for Assessment Consultation and Outreach, UNL Responsibilities: Provide psychometric services for assessment programs in education and licensure including test develop and validity research. Supervised others conducting various research projects for assessment programs.
2000–2004	Graduate Assistant , Instructor Center for Assessment and Research Studies, James Madison University

Service

- Advisory Board member, Past Editor - NCME Newsletter
- Co-Chair – Northern Rocky Mountain Educational Research Association 2007 Conference
- Reviewer – *Applied Measurement in Education, Educational Measurement: Issues and Practice, Journal of Statistics Education, Learning and Individual Differences, Journal of Educational Measurement, International Journal of Testing*
- NCME: Award Committee, Website Redevelopment Task Force

Professional Affiliations

- National Council on Measurement in Education
- International Test Commission

Recent Scholarly Research

Publications

Davis-Becker, S., & Zurn, J. (2016). Evaluating the use of custom simulation items: The good, the bad, and reality. *Clear Exam Review, Winter 2015*, 21-27.

Wolkowitz, A., & Davis-Becker, S. (2015). Evaluating common item block options when faced with practical constraints. *Practical Assessment Research & Evaluation, 20(19)*.

Davis-Becker, S., & Kelly, J. (2015). Score Reporting: Where Policy meets Psychometrics. ICE White Paper.

Davis-Becker, S., & Buckendahl, C. (2013). A proposed framework for evaluating alignment studies. *Educational Measurement: Issues and Practice, 23(1)*, 23-33.

Buckendahl, C. & Davis-Becker, S. (2012). Setting Passing Standards for Credentialing Programs. In G. Cizek (Ed.). *Setting Performance Standards: Foundations, Methods, and Innovations (2nd Edition)*, 485-502.

Davis-Becker S., & Buckendahl, C. (2012). Identifying and Evaluating External Validity Evidence for Passing Scores. *International Journal of Testing, 13(1)*, 50-64.

Davis, S. & Buckendahl, C. (2011). Integration of cognitive demand into licensure and certification exam development. In G. Schraw (Ed.). *Assessment of higher order thinking skills*. Washington, DC: American Psychological Association.

Presentations

Davis-Becker., S., & Zurn, J. (2015, October). *Fast-tracking new items into an Existing Exam: Using Cognitive Labs to Evaluate Item Types and Inform Decisions*. Presentation delivered at the annual meeting of the Institute for Credentialing Excellence, Portland, OR.

Brutsche, J., Davis, K., Munson, L., Toof, R., & Davis-Becker, S. (2015, October). *Considering Online Proctoring: Tips, Guidelines, & Lessons Learned*. Presentation delivered at the annual meeting of the Institute for Credentialing Excellence, Portland, OR.

Davis-Becker, S., & Mackey, P. (2015, September). *Legal and Fairness Issues in Score Reporting: A Practical Approach*. Presentation delivered at the annual meeting of the Council on Licensure Enforcement and Regulation, Boston, MA.

Wiley, A., & Davis-Becker, S. (2015, April). *Developing a Framework for the International Benchmarking of Performance Standards*. Presentation delivered at the annual meeting of the National Council on Measurement in Education, Chicago, IL.

Wolkowitz, A., & Davis-Becker, S. (2015, April). *Evaluating Common Item Block Options when Faced with Practical Constraints*. Presentation delivered at the annual meeting of the National Council on Measurement in Education, Chicago, IL.

Wolkowitz, A., Zurn, J., Terry, J., & Davis-Becker, S. (2015, February). *If at First you Don't Succeed: An Analysis and Interpretation of Candidate Retake Response Patterns*. Presentation delivered at the annual meeting of the Association of Test Publishers, Palm Springs, CA.

ANDREW WILEY

Education

1999	Ph.D. Psychometrics and Quantitative Psychology Fordham University, Bronx NY
1992	M.A. Psychometrics and Quantitative Psychology Fordham University, Bronx NY
1991	B.A. Psychology (minor in English) LaSalle University, Philadelphia PA

Professional Experience

2016 – present	Founding Partner ACS Ventures, LLC; Las Vegas, NV
2013 – 2016	Senior Psychometrician, Director of Education Services Alpine Testing Solutions, Inc.
2002 – 2013	Associate Research Scientist, Senior Director, Executive Director The College Board
1999 – 2002	Psychometrician American Board of Internal Medicine
1996 – 1999	Psychometrician American Institute of Certified Public Accountants
1995 – 1996	Research Associate Association of American Medical Colleges

Professional Affiliations and Service

American Educational Research Association	
Applied Measurement in Education	
Manuscript reviewer	
Association of Test Publishers	
Program chair	2005 – 06
Executive Committee chair	2007 – 08
Board of Trustees	2010 – 14
Board of Trustees, chair	2013
National Council on Measurement in Education	
Proposal Reviewer	2014-15
Expert Panel Chairperson	2014
Annual Award Committee	2013-15 (chair for 2015)
Review of Educational Research	
Manuscript Reviewer	

Selected Scholarly Research

- Wiley, A. (April, 2015). *Policies and procedures for the independent evaluation of educational assessment programs*. Paper presented at the annual meeting of the National Council on Measurement in Education, Chicago, IL.
- Wiley, A. & Davis-Becker, S. (April, 2015). *Developing a framework for the international benchmarking of performance standards*. Paper presented at the annual meeting of the National Council on Measurement in Education, Chicago, IL.
- Merriman, J., Sireci, S., Wiley, A., & Farrar Hamen, C. (April, 2014). *A validity framework for a scientific knowledge for teaching assessment*. Paper presented at the annual meeting of the National Council on Measurement in Education, Philadelphia, PA.
- Camara, W., Packman, S., & Wiley, A. (2013). College, graduate and professional school admissions testing. In K.F. Geisinger (Ed.), *APA handbook of testing and assessment in psychology, Volume 3: Testing and assessment in school psychology and education*. American Psychological Association.
- Gierl, M. & Wiley, A. (September, 2012). *Policies and procedures for the development of more effective item writing and test development*. Paper presented at the annual meeting of the Association of Test Publishers - Europe, Berlin, Germany.
- Wiley, A., Douglas, A., Fiumana, D., Johnson, M., & Kuan, D. (April, 2012). *Development of a taxonomy of attributes and components of test items: The foundation of a more efficient assessment design process*. Paper presented at the annual meeting of the National Council on Measurement in Education. Vancouver, BC.
- Wyatt, J. N., Kobrin, J., Wiley, A., Camara, W. J., & Proestler, N. (2011). *SAT Benchmarks: Development of a College Readiness Benchmark and its Relationship to Secondary and Postsecondary School Performance* (College Board Research Report No. 2011-5). New York, NY: College Board.
- Antal, J., Melican, G., Proctor, T., & Wiley, A. (May, 2010). *The effect of anchor test construction on scale drift*. Paper presented at the annual meeting of the National Council on Measurement in Education. Denver, CO.
- Kaliski, P. K., Antal, J., & Wiley, A. (May, 2010). *Examining individual and school effects on the revised SAT scores using multilevel modeling*. Paper presented at the annual meeting of the American Educational Research Association. Denver, CO.
- Padaki, M., Harris, W.G., Dhirendra, R., Bhardwaj, M., & Wiley, A. (March, 2010). *Enhancing the effectiveness of examinations by leveraging technology*. Paper presented at the Emerging Directions in Global Education conference, New Delhi, India.
- Wiley, A., Wyatt, J. N., & Camara, W. J. (2010). *The Development of a Multidimensional College Readiness Index* (College Board Research Report No. 2011-5). New York, NY: College Board.
- Wyatt, J. N. & Wiley, A. (May, 2010). *Academic rigor: Differences in high school course difficulty among ethnic subgroups and its implications for college performance*. Paper presented at the annual meeting of the American Educational Research Association, Denver.

Howard Everson
SRI International

Director, Assessment Research and Design
Center for Technology in Learning, Education Division

Specialized Professional Competence

Research on assessment design, psychometrics, design of technology enhanced assessments, and the relationship among cognition, instruction, and assessment.

Representative Research Assignments

Executive Director of a subcontract to the American Institutes for Research to support the statistical and psychometric analyses of the National Assessment of Educational Progress (NAEP). This subcontract called for providing ongoing statistical review of findings from the NAEP assessments in Mathematics, Science, and English language arts.

Chief Research Scientist, the College Board. This role provided technical oversight and direction to researchers working in support of the SAT, PSAT, and AP Programs. This work included offering guidance on issues of research design, sampling, and psychometric modeling. Over the course of more than a decade the College Board and ETS annual research budgets increased to more than \$1 million.

Principal Investigator of the New York State Education Department (NYSED)-funded study of the implementation of the Common Core Learning Standards across school districts in New York state, and New York City. This research involved identifying and selecting schools and school districts for in-depth study, and the design and implementation of quantitative and qualitative case studies in eight targeted school districts.

Principal Investigator of a PARCC-funded pilot study to investigate the measurement properties of a collection of technology-enhanced mathematics items aligned to the Common Core Math standards. This pilot study was conducted in two large school districts and the psychometric results were used to inform and improve the design of computer-based math assessment items.

Professional Experience

Co-Director, Assessment Research and Design, Center for Technology in Learning, SRI International (2016-present)

Co-Chair, New York State Education Department Technical Advisory Committee (1995-present)

Director, Center of Advanced Study in Education, Graduate School & University Center, City University of New York (2012-2015)

Professor, Educational Psychology & Psychometrics, Graduate Center, City University of New York (2009-present)

Executive Director, American Institutes for Research, NAEP Educational Statistical Services Institute, Washington, DC (2005-2006)

Vice President & Chief Research Scientist, College Board, New York, NY (1992-2005)

Psychometric Research Fellow, Educational Testing Service, Princeton, NJ (1991-1992)

Director of Assessment Research, City University of New York (1985-1991)

Academic Background

Ph.D., Educational Psychology, 1985, Graduate School, City University of New York

M.A., Teacher Education, 1975, Montclair State College, New Jersey

B.A., Psychology, 1972, Brooklyn College, City University of New York

Selected Publications

- Beniners, G.A., & Everson, H.T. (April, 2009). *School effects on gender differences in learning mathematics during high school: A multiple group multilevel latent growth analysis of PSAT/NMSQT to SAT performance in mathematical reasoning*. Paper presented at the annual meeting of the National Council of Measurement in Education, San Diego, CA.
- Chatterji, M., Koh, N., Solomon, P., & Everson, H.T. (April, 2008). *Mapping the cognitive pathways in mastering long division: A case study*. Paper presented at the annual meeting of the American Educational Research Association, New York, NY.
- Dixon-Roman, E., Everson, H.T., & McArdle, J.J. (2012). Race, Poverty and SAT Scores: Modeling the Influences of Family Income on Black and White High School Students' SAT Performance. *Teachers College Record* Volume 115 Number 4, 2013 <http://www.tcrecord.org> ID Number: 16925
- Everson, H.T., & Tobias, S. (2001). The ability to estimate knowledge and performance in college: A metacognitive analysis. In H. Hartman (Ed.). *Metacognition in Learning and Instruction*. Boston, MA: Kluwer Academic Publishers.
- Everson, H. & Millsap, R. (2004). Beyond Individual Differences: Exploring School Effects on SAT Scores. *Educational Psychologist*, 39(3), 157-172.
- Everson, H.T. & Millsap, R.E. (2005). The impact of extracurricular activities on standardized test scores. In E.W. Gordon & B. Bridglall (Eds.) *Supplementary Education*. Rowman & Littlefield, Minneapolis, MN.
- Everson, H.T. (2006). *The Problem of transfer and adaptability: Applying the learning sciences to the challenge of the achievement gap*. In E.W. Gordon & B. Bridglall (Eds.) *The Affirmative Development of Academic Achievement*, Rowman & Littlefield, Minneapolis, MN.
- Everson, H.T. (2010). Cross-cultural issues and approaches in educational assessment. In K. Keith (Ed.) *Cross-Cultural Psychology: A Contemporary Reader*. Hoboken, NJ: Wiley-Blackwell.
- Everson, H.T., Verkuilen, J., Stevens-Thomas, A., Racanello, A. (2013). *The PARCC Mathematics Item Prototyping Project: Report of the Spring 2012 Pilot Study*. Center for Advanced Study in Education, Graduate School, City University of New York.
- Everson, H.T., Pellegrino, J.W., & Perie, M. (2014). *Summary of the Phase I Standard Setting for the Excellence for All Initiative of the National Center on Education and the Economic*, Washington, DC.
- Millsap, R.E. & Everson, H. (1993). Methodology review: Statistical methods for detecting test bias. *Applied Psychological Measurement*, 17(4).
- M. Rabinowitz, F. Blumberg, & H. Everson (Eds.) (2004). *The design of instruction and evaluation: Affordances of using media and technology*. Mahwah, NJ: Erlbaum Associates.
- Sternberg, R.J., & Rainbow Project Collaborators (2005). Augmenting the SAT through assessments of analytical, practical and creative skills, In W. Camara and E. Kimmel (Eds.) *Choosing students: Higher education admission tools for the 21st century* (pp. 159-176). Mahwah, NJ: Erlbaum Associates.

- Tobias, S. & Everson, H. (2000). Assessing metacognitive knowledge monitoring. In G. Schraw (Ed.), *Issues in the measurement of metacognition*. Lincoln NE: Buros Institute of Mental Measurements and Erlbaum Associates.
- Tobias, S. & Everson, H. (2000). Cognition and metacognition: A Review of Metacognition in Educational Theory and Practice. In D. Hacker, J. Dunlosky & A.C. Graesser (Eds.) *Issues in Education: Contributions from Educational Psychology*, Vol. 6, No. 1-2, 167-173.
- Tobias, S. & Everson, H.T. (2009). The Importance of knowing what you know: A knowledge monitoring framework for studying metacognition in education. In D. Hacker, J. Dunlosky, & A. Graesser (Eds.). *Handbook of Metacognition in Education*, Routledge, NY.
- Yamamoto, K. & Everson, H. (1996). Modeling the effects of test strength and test time on parameter estimation using the HYBRID Model. In J. Rost & Longeheine (Eds.), *Applications of latent trait and latent class models in the social sciences*. NY: Waxmann Publishers.

Daisy Rutstein

Education

Undergraduate Institution

University of California,	Santa Cruz, CA	Mathematics and Computer Science	B.A., 1998
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Graduate Institution

University of California,	Santa Cruz, CA	Mathematics	M.A., 2000
University of Maryland,	College Park, MD	Measurement, Statistics and Evaluation	Ph.D., 2012

Professional Experience

2011–present	Educational Researcher, SRI International, Menlo Park, CA
2007–10	Statistical Consultant, Uniformed Services, University of Health Sciences, Bethesda, MD
2004–10	Graduate Assistant, University of Maryland, College Park, MD
2000–04	Developer Support Engineer, RSA Security, San Mateo, CA

Products (selected)

- Behrens, J. T., Frezzo, D., Mislevy, R. J., Kroopnick, M., & Wise, D. (2008). Structural, functional and semiotic symmetries in simulation-based games and assessments. In E. Baker, J. Dickieson, W. Wulfeck, & H. O'Neill (Eds.), *Assessment of problem solving using simulations* (pp. 59–80). Mahwah, NJ: Lawrence Erlbaum.
- Bienkowski, M., Snow, E., Rutstein, D. W., & Grover, S. (2015). *Assessment design patterns for computational thinking practices in secondary computer science: A first look* (SRI technical report). Menlo Park, CA: SRI International.
- Mislevy, R. J., Riconscente, M. M., & Rutstein, D. W. (2009). *Design patterns for assessing model-based reasoning* (PADI—large systems technical report 6). Menlo Park, CA: SRI International.
- Rutstein, D. W. & Haertel, G. (2014). *Technical Issues in Performance Scoring*. Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA, 2014.
- Rutstein, D. W., Haertel, G. & Vendlinski, T. (2014). *Leveraging Multiple Perspectives to Develop Technology-Enhanced, Scenario-Based Assessments*. Paper presented at the annual meeting of the National Council on Measurement in Education, Philadelphia, PA, 2014.
- Rutstein, D. W., Snow, E & Bienkowski, M. (2014). *Computational Thinking Practices: Analyzing and Modeling a Critical Domain in Computer Science Education*. Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA, 2014.

West, P., Rutstein, D. W., Mislevy, R. J., Liu, J., Levy, R., DiCerbo,... & Behrens, J. T. (2012). A Bayesian network approach to modeling learning progressions. In A. C. Alonzo & A. W. Gotwals (Eds.), *Learning progressions in science*. Rotterdam, Netherlands: Sense.

Synergistic Activities

Senior Personal, Computer Science in Secondary Schools (CS3): Studying Context, Enactment, and Impact (National Science Foundation). Led the task on revisions to the Exploring Computer Science end-of-unit assessments.

Senior Personal, Preparing Urban Middle Grades Mathematics Teachers to Teach Argumentation Throughout the School Year (National Science Foundation). Applying an Evidence-Centered Design approach to the development of instruments for measuring teacher and student ability related to mathematical argumentation.

Senior Personal, Next Generation Preschool Science, (National Science Foundation). Applied an Evidence-Centered Design approach to the development of assessments for pre-school children in science.

Senior Personal, Principled Assessment for Computational Thinking (National Science Foundation). Applied an Evidence-Centered Design approach to the development of assessments for computational thinking aligned to a high-school computer science curriculum.

Brent Garrett, Ph.D.
7505 Jennifer Place
Louisville, KY 40220
(502)762-3515
brent@bgarrettconsulting.net

Work Experience

Garrett, Consulting, LLC (85% FTE)

6/93 - Present

- *State Personnel Development Grants* - Lead evaluator for New Hampshire, Mississippi, Delaware, & Nevada's OSEP-funded State Personnel Development Grants (SPDGs). Activities evaluated include MTSS/RTI for academics and behavior; early childhood initiatives on social/emotional learning, early language literacy, and C-B transition; post-secondary transition, PBIS. (80%)
- *University of Vermont* – Serve as external evaluator for an early childhood personnel preparation grant and in the same capacity for the UVM Center on Disability and Community Inclusion. (3%)
- *Ohio History Connection* - Serve as external evaluator on projects funded by the Texas Historical Commission, Ohio Arts Council, & the NEH. (2%)

Pacific Institute for Research and Evaluation (15% FTE)

10/04 - Present

- *State Personnel Development Grant* - Principal Investigator for the evaluation component of the Vermont SPDG. Activities evaluated include RTI for academics and behavior and early childhood initiatives on social/emotional learning, early language literacy, and C-B transition; post-secondary transition.

Other Projects Worked On While at PIRE:

- *National Center and State Collaborative General Supervision Enhancement Grant* – External evaluator to assess the degree of quality, relevance, and utility of efforts to develop a model alternate assessment on alternate achievement standards.
- *Evaluating the Validity of English Language Proficiency Assessments* - Lead evaluator on a 5 state consortium to improve the validity of English Language Proficiency assessments.
- *Teaching American History Grants*. Partnered with PIRE colleague as Principal Investigator on quasi-experimental evaluations of 12 professional development initiatives in Ohio, Pennsylvania, and Kentucky, funded by the Office of Innovation and Improvement at the US Department of Education.
- *MeTRC* –A University of Kentucky project which investigated an intervention designed to improve the mathematics achievement of 7th grade students with print disabilities.
- *Providing Rural Interdisciplinary Services for Youth with Mental Health Needs (PRISYM)*, funded the Health Resources and Services Administration within the US Cabinet of Health and Human Services, via a subcontract with Eastern Kentucky University. Oversee evaluation efforts to increase the number of graduating students employed by regional mental health centers in eastern Kentucky.
- *Kentucky's General Supervision Enhancement Grant*, (2004-2006) funded by the Office of Special Education and Rehabilitative Services at the US Dept of Education. Assist in evaluating initiatives related to early childhood outcomes and standards, early childhood transition, and alternate assessments for students with significant cognitive disabilities. Project ended March 31, 2007.

- *New Hampshire Enhanced Assessment Initiative*, funded by the Office of Elementary and Secondary Education at the US Department of Education. A five-state collaborative, with the evaluation component funded by a subcontract with the University of Kentucky. Assist in evaluating an effort to develop more technically sound alternate assessment systems. Project ended May 30, 2007
- *Character Education Technical Assistance Center*. Evaluation consultant for state and school grantees receiving funding through the Office of Safe and Drug Free Schools at the US Department of Education.
- *Evaluation of Mentoring Initiative for System Involved Youth* – Principal Investigator on a cross-site evaluation of four youth mentoring programs. Funded by the Office of Juvenile Justice and Delinquency Prevention at the U.S. Department of Justice (15%).
- *Southeast Center for Application of Prevention Technologies*. Deputy Director for Evaluation for a regional technical assistance center funded by the Substance Abuse and Mental Health Systems Administration (SAMHSA) within the US Cabinet of Health and Human Services. Oversee internal evaluation efforts, participate in cross-CAPT evaluation activities, and provide evaluation-related technical assistance to state and local prevention programs.
- *Parental Help Seeking for Dental Care*, funded by the National Institute for Dental and Craniofacial Research, via a subcontract with the University of Louisville. The evaluation of an experimental effort to increase the use of dental care by children of Medicaid recipients.

Interdisciplinary Human Development Institute, University of Kentucky 10/92 – 9/04

Projects Worked on While at the Interdisciplinary Human Development Institute:

- *Evaluation and Research Consultant for the Alliance for Systems Change/Mid-South Regional Resource Center*. Coordinated and provide guidance to internal evaluation team. Also provided needs-based technical assistance in areas such as data management, program evaluation, proposal development, and alternate assessment for internal staff and personnel working in 9 state departments of education. (7/02 – 9/04).
- *Lead Evaluator for the Kentucky State Improvement Grant I*. Assisted the KY Department of Education in evaluating the State Improvement Grant. Included initiatives related to early childhood transition, positive behavior systems, assistive technology, access to the general curriculum, secondary transition, and parent involvement. (2/03 – 9/04).
- *Project Director for the Including Students with Deaf-Blindness in Large Scale Assessment Systems Project*. Responsible for the implementation of a U.S. Department of Education funded research project to better understand how students with deaf-blindness fare in state general and alternate assessment systems. Three manuscripts were accepted for publication. (7/00 – 9/03).
- *Project Director for the Kentucky Alternate Portfolio System Study*. Responsible for the final year of implementation of a U.S. Dept. of Education research project. Provided administrative oversight, conducted data analyses, and completed all final reports. Co-authored one publication. (7/00 – 9/01).
- *Project Director for the Kentucky Employment Initiative*. Responsible for administrating and managing a U.S. Department of Education funded project to improve employment options for students with disabilities at universities and community colleges across Kentucky. Supervised four individuals, managed an annual budget of \$100,000, and performed all administrative and management functions. (10/93 - 9/96).

- *Principal Investigator/Project Director for the Community Based Work Transition Program.* Administered a \$1.4 million program for the Kentucky Department of Vocational Rehabilitation and the Department of Education. Designed, implemented, and evaluated training and technical assistance to personnel in more than 100 school districts and state agencies participating in a community based work transition program. Was responsible performing all administrative and management functions, as well as training and technical assistance. (10/92-6/00).

Education

University Of Kentucky, Lexington, KY 5/2002

Doctorate of Philosophy

Martin School of Public Policy and Administration

Dissertation – The Role of Policy Entrepreneurs in Policy Diffusion

University Of Kentucky, Lexington, KY 5/2000

Masters in Public Policy and Administration

Martin School of Public Policy and Administration

University Of North Carolina At Greensboro, Greensboro, NC 6/87-12/89

Bachelor of Arts-Mathematics, Secondary Teacher Certification

Additional Training:

- Human Participants Protection Education for Research Teams. Sponsored by the National Institutes for Health. (October 2004, renewed annually)
- Focus Group Training. Presented by Richard Kreuger as a 2004 AEA Pre-Conference session
- The Effective Facilitator. Presented by the Leadership Strategies Institute. (April 2000)

Selected Refereed Journal Articles:

Sheppard-Jones, K., Garrett, B, & Huff, M.B. (2007). Community based work experiences for students with significant disabilities: Real world work equals real world success. *International Journal on Disability and Human Development*, 6(1), 47-52.

Towles-Reeves, E., Garrett, B., Burdge, M., and Burdette, P. (2006). What are the consequences? Validation of large scale alternate assessment systems and their influences on instruction. *Assessment for Effective Intervention*. 31(3), 45-57.

White, M., Garrett, B., Kearns, J.F., & Grisham-Brown, J. (2003). Instruction and assessment: How students with deaf-blindness fare in large-scale alternate assessments. *Research and Practice for Persons with Severe Disabilities*,28(4), 205-213.

Kleinert, H., Garrett, B., Towles, E., Garrett, M., Nowak-Drabik, K., Waddell, C., & Kearns, J. (2002). Alternate assessment scores and life outcomes for students with significant disabilities: Are they related? *Assessment for Effective Intervention*.28(1),19-30.

Garrett, B., Huff, M., & Sheppard-Jones, K. (2002). Rehabilitation and education partnerships: Nurturing positive communities. *Journal of Rehabilitation Administration*,26(2),123-133.

Work Experience

Pacific Institute for Research and Evaluation, Louisville, KY

Lead Teams Currently Working On:

- *Relationships between Parental Involvement and Parenting Dynamics on Mentoring Outcomes.* Principal Investigator research study assessing the impact of parental involvement, parenting styles, and parent-child dynamics on mentoring relationship outcomes and school achievement. of additional training and enhanced match support on length and strength of match outcomes. Funded by the Department of Justice, Office of Juvenile Justice and Delinquency Prevention (OJJDP).
- *Hybrid Learning/Inquiry Math-Science Partnership Grant.* Principal Investigator of a Math-Science Partnership Project in Pennsylvania that used a quasi-experimental evaluation design to measure content knowledge and teaching practice changes by K-8 mathematics teachers.
- *Work Attitudes Toward Careers in Health (WATCH).* Principal Investigator for longitudinal evaluation of project efforts to move long-term TANF recipients to health career careers through education, training, and wraparound support. Funded by the Administration for Children and Families (ACF) through a Health Professions Opportunity Grant (HPOG) to the Central Susquehanna Intermediate Unit.

Other Projects Worked On While at PIRE

- *Improving Relationship Outcomes With Additional Training and Enhanced Match Support for Mentors.* Principal Investigator for experimental evaluation of the impact of additional training and enhanced match support on length and strength of match outcomes. Funded by the Department of Justice, Office of Juvenile Justice and Delinquency Prevention (OJJDP). Project completed September 30, 2014.
- *Inquiry into Science Math-Science Partnership Grant.* Principal Investigator of a Math-Science Partnership Project in Pennsylvania that used a quasi-experimental evaluation design to measure content knowledge and teaching practice changes by science teachers. Project completed September 30, 2013.
- *Teaching American History Grants.* Principal Investigator on three Teaching American History Grants, two of which used a quasi-experimental design, to assess the changes in content knowledge, instructional practices, and student achievement in history, funded by the Office of Innovation and Improvement at the US Department of Education. Team member on 9 other Teaching American History grants. Projects completed September 30, 2013.
- *Afghanistan DAT Evaluation—Feasibility Study.* Project and Fieldwork Manager for longitudinal evaluation of treatment effectiveness of 7 drug abuse treatment (DAT) centers in Afghanistan, funded by the U.S Department of State Bureau of International Narcotics and Law Enforcement Affairs. Project completed December 3, 2012.
- *Mentoring for System-Involved Youth (MISY).* Principal investigator for cross-site process and outcome evaluation of four mentoring projects that were designed to reduce school dropout and to reduce youth involvement in the juvenile justice system. Funded by the Department of Justice, Office of Juvenile Justice Programs (OJJDP). Project completed February 28, 2011.

Research Scientist

Pacific Institute for Research and Evaluation

- *El Salvador DAT Evaluation.* Project Manager for longitudinal evaluation of treatment effectiveness of 29 drug abuse treatment (DAT) centers in El Salvador, funded by the U.S Department of State Bureau of International Narcotics and Law Enforcement Affairs. Project completed July 31, 2011.
- *Consent Procedures Project.* Principal investigator of an experimental study of the impact of active consent procedures on the validity and reliability of student survey data in 14 Kentucky school districts, funded by the National Institute on Drug Abuse (NIDA). Project completed September 30, 2009.

Sample of Refereed Journal Articles

Abadi, M., Shamblen, S., Courser, M., Johnson, K., Young, L., Thompson, K., & Browne, T. (2014) "Differences Among Afghan Women and Men in Drug Abuse Treatment: An Assessment of Treatment Entry Characteristics, Dropout, and Outcomes." *Journal of Ethnicity and Health*, 20(5), 453-473.

Shamblen, S., Courser, M., Abadi, M., Johnson, K., Young, L., & Browne T. (2013) "An international evaluation of DARE in São Paulo, Brazil." *Drugs: Education, Prevention, and Policy*, 21(2), 110-119.

Courser, M., Johnson, K., Abadi, M., Shamblen, S., Young, L., Thompson, K., & Browne, T. (2013) "Building an Evidence Base for Drug Treatment in Afghanistan: Lessons Learned and Implications for Future Research." *International Journal of Prevention and Treatment of Substance Use Disorders* (1) 1: 12-27.

Johnson, K., Shamblen, S., Courser, M., Young, L., Abadi, M., & Browne, T. (2013) "Drug Use and Treatment Success Among Gang and Non-gang members in El Salvador: A Prospective Cohort Study." *Substance Abuse Treatment, Prevention, and Policy* (8) 20: ISSN: 1747-597X.

Courser, M., & Lavrakas, P. (2012) "Item-Nonresponse, Measurement Error, and the 10-Point Response Scale." *Survey Practice* (5) 4: ISSN: 2168-0094.

Abadi, M., Shamblen, S., Johnson, K., Thompson, K., Young, L., Courser, M., & Vanderhoff, J. (2012) "Examining Human Rights and Mental Health Among Women in Drug Abuse Treatment in Afghanistan." *International Journal of Women's Health*, 4: 1-11.

Johnson, K., Grube, J., Ogilvie, K., Collins, D., Courser, M., Dirks, L., Ogilvie, D., & Driscoll, D. (2012) "A Community Prevention Model to Prevent Youth from Inhaling and Ingesting Harmful Legal Products in Frontier Communities." *Evaluation and Program Planning*, 35: 113-123.

Courser, M., Shamblen, S., Lavrakas, P., Collins, D., & Ditterline, P. (2009) "The Impact of Active Consent Procedures on Student Survey Data: Evidence from a New Experiment." *Evaluation Review*, 33: 370-395.

Sample of Refereed Presentations

2016 "Using the Tri-Ethnic Model of Community Readiness to Address Important Issues in Ohio Communities," co-presented with Mary Haines and Holly Raffle. Presented at the 2016 Ohio Problem Gambling Conference, March 3-4.

2014. “Conducting a Longitudinal Survey with Drug Treatment Patients in Afghanistan: Methodological and Contextual Challenges,” co-authored with Linda Young, Steve Shamblen, Melissa Abadi Kirsten Thompson, Knowlton Johnson, and Amanda Bajkowski. Presented at the Annual Meeting of the American Association for Public Opinion Research, May 15-18.
2013. “Improving Relationship Outcomes With Additional Training and Enhanced Match Support for Mentors: Preliminary Findings,” co-authored with Linda Young, Steve Shamblen, Kirsten Thompson, Melissa Hutchins, and Stacey Hamilton-Nance. Presentation at the Annual Meeting of the American Society of Criminology, November 20-23.

RESUME DEAN GENGE

EDUCATION:

B.Sc., Biology, Memorial University of Newfoundland, Canada

B.Ed, Secondary Education, Memorial University of Newfoundland, Canada

CONTACT INFORMATION:

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71 Parkhill Street

St. John's, NL A1E 6B2

Email: dean.genge@dngconsulting.org

PROFESSIONAL HIGHLIGHTS:

I have a broad range of experience in the field of education and sales including roles as:

- Program Manager for EQAO, Provincial Coordinator the for CMEC, Test Development Specialist III for Riverside Publishers, Senior Assessment Specialist and Test Development Manager for Harcourt Assessment, National Sales Consultant for Harcourt International Sales and Marketing, Science Assessment consultant for EducQuest in Qatar and the UAE, Science consultant for CTB McGraw-Hill, Account Manager for Sales and Business Development with DGC, free lance science item writer/reviewer for Riverside Publishers, America's Choice, CenterPoint Inc., ETS, ETA Cuisenaire Apex Inc. and CTB – McGraw Hill, Science Dept. Head and teacher for Macpherson Junior High and Leary's Brook Junior High.

PROFESSIONAL EXPERIENCE:

2007 – present

DGC Inc., San Antonio, Texas/St. John's, NL

- *Owner/Operator*
- *Science Consultant for Qatar Internal Assessment Program (IAS)*
- *Program Manager (EQAO in Ontario, Canada)*
- *Account Manager of University of North Texas Social Studies item development*
- *Account Manager of EducQuest's IAS Alignment Study and Psychometrics in Qatar.*
- *Freelance item writer/assessment specialist/committee facilitator*

2004 – 2006

Harcourt Assessment, Inc., San Antonio, Texas

- *National Technical Consultant – International Sales and Marketing*
- *Test Development Manager / Business Development Consultant*
- *Senior Assessment Specialist (Science)*

2002 – 2004

Riverside Publishers, Chicago, Illinois

- *Test Development Specialist III (Science)*

1996 – 2002

Council of Ministers Canada Department of Education/ Government of Newfoundland and Labrador, NL, Canada

- *Educational Consultant/ Provincial Coordinator for National and International Science Assessment Programs for Canada (SAIP, TIMSS, PISA)*

1982 – 1996

Avalon East School Board St. John's, NL, Canada

- *Science Department Head, Intermediate Level*

1981

College of Trades and Technology St. John's, NL, Canada

- *Science and Mathematics Instructor*

OTHER SKILLS

Have completed training in:

Harcourt 5 Step Problem Solving Program
Introduction to Project Management
FLEX training programs
Item and Test development
Diversity Inclusion Programs
Basic Psychometrics
Complex Sales and Marketing Training
Steven Covey's 7 Habits of Effective People
EQAO Effective Management training program

Experience using:

Microsoft Office Suite (Word, Excel, PowerPoint)
Lotus notes
Novell
Word Perfect
Outlook

PRESENTATIONS:

1997 - 1998

Presentation: "National and International Assessments" –Avalon East School Board
In-service Location: St. John's, Newfoundland, Canada.

1998

Presentation: "School Achievement Indicators Program"- Newfoundland and
Labrador Science Council AGM; Location: – Gander, Newfoundland, Canada

1998 - 2001

Presentation: "Scoring of School Achievement Indicators Program"-CMEC-SAIP
Scoring Sessions; Location: Toronto, Ontario, Canada.

2002

Presentation: "Creating Science Blueprint and Item Specifications"- Mississippi DOE
Meetings; Location: Jackson, Mississippi, USA

Presentation: "Analysis of Data"- Ohio DOE data review"-Ohio DOE committes;
Location: Columbus, Ohio, USA

Presentation: "Creating Science Items for NJASK"- New Jersey DOE; Location:
Princeton, New Jersey, USA

2005

Presentation: "International Performance Assessment" – presented various
approaches to large scale assessments in Canada and the United States at the CCSSO
Conference; Location: San Antonio, Texas, USA

2006

Presentation: "Item Review for the Hawaii Alternative Assessment for Science (High
School Biology and Chemistry)"- Hawaii DOE; Location: Honolulu, Hawaii, USA

2008

Presentation: "Item Writing for the Qatar Comprehensive Educational Assessment
QCEA in Biology" – Supreme Education Council; Location: Doha, Qatar.

2009

Presentation: "Item Writing for the Qatar Comprehensive Educational Assessment
QCEA in Biology" – Supreme Education Council; Location: Doha, Qatar.

2010

Presentation: "Item Writing for the Qatar Internal School Assessment in Biology" –
Supreme Education Council; Location: Doha, Qatar.

REFERENCES: Available upon request.

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EDUCATION

University of Kansas	2002	Ph.D., Quantitative Psychology (Minor: Cognitive Psychology)
University of Texas, Austin	1999	M.A., Educational Psychology (Major: Quantitative Methods) (Minor: Learning)
University of California, Los Angeles	1995	B.A., Psychology

EMPLOYMENT HISTORY

2015-	Vice President, Research, Educational Testing Service, Princeton, NJ
2013-2015	Sr. Research Director, Cognitive & Learning Sciences Center, Educational Testing Service, Research & Development Princeton, NJ
2013-2015	Executive Director, NAEP Survey Assessment Innovations Laboratory Princeton, NJ
2012-2013	Research Director, Educational Testing Service, Research & Development Princeton, NJ
2011-2012	Research Scientist, Learning Sciences Institute, Arizona State University
2010-2012	Associate Professor, School of Social and Family Dynamics, Arizona State University
2009-2010	Associate Professor, Measurement Statistics, and Methodological Studies, Arizona State University, Division of Psychology in Education
2008-2010	Program Leader, Measurement, Statistics, and Methodological Studies, Arizona State University, Division of Psychology in Education
2003-2008	Assistant Professor, Measurement Statistics, and Methodological Studies, Arizona State University, Division of Psychology in Education
2002-2003	Instructor ABD, Measurement Statistics, and Methodological Studies, Arizona State University, Division of Psychology in Education
2001-2002	Pre-doctoral Psychometric Fellow, Center for Assessment Design, Educational Testing Service (ETS)
1998	Summer Intern, Center for Performance Assessment, Educational Testing Service (ETS)

RESEARCH HONORS

Outstanding Contribution to Practice in Cognition and Assessment, American Educational Research Association, Cognition & Assessment SIG (2014).

Jason Millman Promising Measurement Scholar Award, National Council on Measurement in Education (2007)

Invited Visiting Scholar, Center for the Assessment of Student Progress, Measured Progress, Dover, NH (2007)

National Science Foundation Young Scientist Travel Award (2004)

Harold Gulliksen Psychometric Fellowship, Educational Testing Service (2001)

William L. Hays Endowed Fellowship, University of Texas (1998)

Pre-doctoral Fellowship, Educational Testing Service (1998)

SPONSORED PROPOSALS FUNDED:

U. S. Department of Education Institute of Educational Sciences (Co-PI for ASU subcontract) 2011-2016, *National Center on Assessment and Accountability for Special Education*. Total award: ASU subcontract \$3.5 million (Total award \$11 million)

U. S. Department of Education Institute of Educational Sciences (Co-PI; sole-PI for ASU subcontract) 2010-2015, *Reading for Understanding Assessment Network*. ASU subcontract \$277,9000 (Total IES award \$15 million).

U. S. Department of Education Institute of Educational Sciences (Co-PI) 2008-2012, *Spanish Screener for Language Impairment in Children (SSLIC)* Total Award: \$1,598,032

U.S. Department of Education (Key Personnel) 2008 – 2009 with no-cost extension to 09/2010, *Adapting Reading Test Items to Increase Validity of Alternate Assessments Based on Modified Academic Achievement Standards (ARTIV)* Total Award: \$1,765,196

The College Board (Principal Investigator) 2007 – 2008, *Q-matrix Design Project* Total Award: \$20,000

Arizona State University College of Education (co-Principal Investigator) 2004 – 2005, *The Pursuit of Postsecondary Education: Exploring Underrepresented Groups in Arizona* Total Award: \$40,000

Educational Testing Service (co-Principal Investigator) 2001 – 2002, *Cognitive and Psychometric Modeling of GRE Verbal Items* Total Award: \$38,000

SELECTED PROFESSIONAL COMMITTEE MEMBERSHIPS

2011–2012 IRA-NICHHD Agenda Setting Panel, International Reading Association and National Institute for Child Health and Human Development.

2008-2012 Design and Analysis Committee (DAC), National Assessment of Educational Progress (NAEP)

2009-2010 Cognitively Based Assessment of, for, and as Learning (CBAL) Technical Advisory Committee, Educational Testing Service (ETS)

2008-2010 Division D Advisory Board, American Educational Research Association

2007-2010 Technical Advisory Committee, Enhanced Assessment Project, Measured Progress, Dover, New Hampshire

SELECTED SCHOLARLY WORKS

- Keehner, M., Gorin J. S., & Feng, G. (in press). Developing and validating cognitive models for assessment. Manuscript to appear in A. A. Rupp & J. Leighton (Ed.) *Handbook on Cognition & Assessment*. Wiley-Blackwell.
- Oranje, A., Yue, J., Kerr, D. & Gorin, J. S. (in press). Collecting, analyzing and interpreting response time, eye-tracking, and log data in computer based assessments. Manuscript to appear in K. Ercikan & J. Pellegrino (Eds.) *Validation of Score Meaning in the Next Generation of Assessments*. NCME Edited Book Series.
- Katz, I., & Gorin, J. S. (2016). Computerising assessment: Impacts on education stakeholders. Manuscript to appear in G.T.L. Brown & L. Harris (Eds.) *Human Factors and Social Conditions of Assessment*. Routledge Press, Educational Psychology Handbook Series, P. Alexander (Ed.).
- Baldonado, A. A., Svetina, D., Gorin, S. J. (2015). Item dependence for passage-based reading comprehension tests. *Applied Measurement in Education*, 28, 202-218.
- Gorin, J. S. (2014). Assessment as Evidential Reasoning. *Teachers College Record*.
- Gorin, J. S., O'Reilly, T., Sabatini, J., Song, Y., & Deane, P. (2013). Measurement: Facilitating the goal of literacy. In B. Miller, P. McCardle, P., & R. Long, R. (Eds.). *Teaching reading & writing: Improving instruction & student achievement*. Baltimore, MD: Paul H. Brookes Publishing Co.
- Gorin, J. S., & Mislevy, R. J. (2013). *Inherent Measurement Challenges in the Next Generation Science Standards for Both Formative and Summative Assessment*. San Antonio, TX: The K12 Center at ETS.
- Parker, C. E., Gorin, J.S., & Bechard, S. (2013). Adapting reading test items: Decreasing cognitive load to increase access for students with disabilities. In M. L. Thurlow, S. S. Lazarus, & S. Bechard (Eds.) *Lessons learned in federally funded projects that can improve the instruction and assessment of low performing students with disabilities*. Minneapolis, MN. University of Minnesota, National Center on Educational Outcomes.
- Gorin, J. S., & Embreston, S. E. (2012). Using Cognitive Psychology to Generate Items and Predict Item Characteristics. In M. Gierl and T. Haladyna (Eds.) *Automatic Item Generation: Theory and Practice*. Routledge/Taylor & Francis Group.
- Gorin, J. S. & Svetina, D. (2012). Cognitive psychometric models as a tool for reading assessment engineering. In J. Sabatini & L. Albro (Eds.) *Assessing Reading in the 21st Century: Aligning and applying advances in the reading and measurement sciences*.
- Gorin, J. S., & Svetina, D. (2011). Test design with higher order cognition in mind. In G. Schraw (Ed.). *Current perspectives on cognition, learning, and instruction: Assessment of higher order thinking skills*.
- Svetina, D., Gorin, J. S., & Tatsuoka, K. K. (2011). Defining and Comparing the Reading Comprehension Construct: A Cognitive-Psychometric Modeling Approach. *International Journal of Testing*.

- Gorin, J. S. (2007). Reconsidering issues in validity theory: A response to Lissitz and Samuelsen. *Educational Researcher*, 36, 456-462.
- Gorin, J. S. (2007). Test Construction and Diagnostic Testing. In J. P. Leighton & M. J. Gierl, Eds. *Cognitive Diagnostic Assessment in Education: Theory and Practice*. Cambridge University Press.
- Gorin, J. S., & Embretson, S. E. (2007). Item response theory and Rasch models. In D. McKay, (Ed.). *Handbook of research methods in abnormal and clinical psychology*. Sage Publications.
- Gorin, J. S. (2006). Test Design with cognition in mind. *Educational Measurement: Issues and Practice*, 25(4), 21-35.
- Gorin, J. S., & Embretson, S. E. (2006) Item Difficulty Modeling of Paragraph Comprehension Items. *Applied Psychological Measurement*, 30(5), 394-411.
- Gorin, J. S. (2005). Manipulation of processing difficulty on reading comprehension test questions: The feasibility of verbal item generation. *Journal of Educational Measurement*, 42, 351-373.
- Gorin J. S., Dodd, B. G., Fitzpatrick, S., & Sheih, Y. Y. (2005). Computerized adaptive testing with the partial credit model: Estimation procedures, population distributions, and item pool characteristics. *Applied Psychological Measurement*, 29, 1-24.
- Embretson, S. E. & Gorin, J. S. (2001). Improving construct validity with cognitive psychology principles. *Journal of Educational Measurement*, 38(4), 343 – 368.

SELECTED REFEREED CONFERENCE PRESENTATIONS

- Gorin, J.S. (2015, October). *Next Generation Performance Assessment for Improved Assessment and Learning*, Annual Meeting of the Northeastern Educational Research Association, Trumbull, CT.
- Gorin, J.S. (2014, December). *Assessment Innovations from the Cognitive & Learning Sciences*. Paper presented at the Annual Meeting of the California Educational Research Association, San Diego, CA.
- Gorin, J. S., & Mislevy, R. J. (2014, April). *Inherent Measurement Challenges in the Next Generation Science Standards for Both Formative and Summative Assessment*. Paper presented at the Annual Meeting of the National Council on Measurement in Education, Philadelphia, PA.
- Gorin, J. S. (2013, April). *On the use of scenario-based tasks for next generation educational assessment*. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, CA.
- Gorin, J. S. (April, 2011). *Novel Item Difficulty Modeling Applications: Special testing populations and uses*. Paper presented at the Annual Meeting of the National Council on Measurement in Education. New Orleans, LA.
- Parker, C. E., Bechard, S., & Gorin, J. S. (June, 2010). *Reducing cognitive load in 2% assessments: What works (or doesn't work) for eligible students?* Presentation at the Council of Chief State School Officer's National Conference on Student Assessment, Orlando, FL.

Gorin, J. S. (May, 2010). *Enhanced Assessment Item Development: An Item Difficulty Modeling Approach*. Paper presented in symposium at the annual meeting of the National Council on Measurement in Education, Denver, CO.

Parker, C. E., Bechard, S., & Gorin, J. S. (May, 2010). *Using Cognitive Interviews for Item Development and Identification of Cognitive Characteristics of Students Eligible for AA-MAS*. Structured poster presented at the Annual Meeting of the American Educational Research Association, Denver, CO.

SELECTED INVITED SCHOLARLY PRESENTATIONS

Gorin, J. S. (2014). *Assessment Innovations for Higher Education: The Role of the Cognitive & Learning Sciences*. Presented to the American Council on Education's Washington Higher Education Secretariat. Washington, DC.

Gorin, J. S., & Mislevy, R. J. (2013, September). *Inherent Measurement Challenges in the Next Generation Science Standards for Both Formative and Summative Assessment*. Invitational Research Symposium on Science Assessment, Washington, DC.

Gorin, J. S. (2013, April). *The Continuing Evolution of Cognition and Assessment in K--12: A Retrospective and a Look Ahead*. Panel discussion at the Annual Meeting of the American Educational Research Association, San Francisco, CA.

Gorin, J. S. (2008). *Increasing the impact of assessment on learning*. Invited presentation in The Big Challenges and Research Opportunities in Testing and Measurement session sponsored by the American Educational Research Association: Division D, New York, NY.

SELECTED EDITORIAL ACTIVITIES

Review Panel Member, Institute for Education Sciences - NCER and NCSE

Editorial Board Member, *Educational Measurement: Issues and Practice*

Editorial Board Member, *Journal of Applied School Psychology*

Editorial Board Member, *Educational Technology: Research and Development*

KRISTEN HUFF - SHORT CV

khuff8@gmail.com

EDUCATION

Doctor of Education

Measurement, Research and Evaluation Methods Program
University of Massachusetts Amherst
Degree conferred: May 2003
Dissertation Title: *An item modeling approach to descriptive score reports*

Master of Education

Educational Research, Measurement, and Evaluation
University of North Carolina at Greensboro
Degree conferred: May 1996

Bachelor of Arts

Religious Studies, Sociology
University of North Carolina at Greensboro
Degree conferred: December 1992

PROFESSIONAL EXPERIENCE SINCE 1994

Vice President, Assessment and Research

Curriculum Associates, N. Billerica, MA
June 2016 - present

Vice President, Research Strategy and Implementation

ACT, Iowa City, IA
June 2015 – May 2016

Senior Fellow, Assessment

Regents Research Fund, University of the State of New York, New York, NY
November 2010 – April 2015

Senior Research Scientist, Research and Development

The College Board, New York, NY
July 2003 – November 2010

Group Leader, English Language Assessment Analysis Team

Center for Statistical Analysis, Research and Development
Educational Testing Service, Princeton NJ
September 2001 – June 2003

Research Associate, Medical College Admission Test (MCAT)

Association of American Medical Colleges, Washington DC
January 1997 - August 1999

Responsible for the MCAT Predictive Validity Research Study, as well as initiating and coordinating the MCAT Graduate Student Research Program.

Project Manager, Technical Analysis Group for the National Board of Professional Teaching Standards

**Center for Educational Research and Evaluation, University of North Carolina at Greensboro
August 1996 - December 1996**

Responsible for the evaluation of adverse impact reports for several NBPTS certification exams and the supervision of graduate student work on these reports.

PROFESSIONAL ACTIVITIES

- NCME Board of Directors, 2014 -
- Louisiana Department of Education Technical Advisory Committee, 2013 – 2015
- NAEP Technical Advisory Committee on Standard Setting, 2014 - 2016
- AICPA Technical Advisory Committee, 2014 –
- Achievement Network Technical Advisory Committee, 2014 – 2015
- Curriculum Associates Technical Advisory Committee, 2015
- Program Chair, AERA Cognition and Assessment Special Interest Group, 2012-13
- AERA Division D Secretary, elected 2012 (three-year term)
- Colorado Content Collaborative Technical Advisory Committee, 2012 (one-year term)
- Designer/Facilitator, ECD Training Session, NCME, 2011, 2012, 2013, 2014
- Past President, Northeastern Educational Research Association (NERA), 2009-2010
- President, Northeastern Educational Research Association (NERA), 2008 -2009
- Co-PI for NSF DRL Instructional Materials Development Grant (#0903151) “From Research to Practice: Redesigning AP Science Courses to Advance Science Literacy and Support Learning with Understanding” Jim Pellegrino, PI (University of Illinois, Chicago)
- External Advisor, NSF Grant, “Application of Evidence-Centered Design to States' Large-Scale Science Assessment” PIs (Geneva Haertel, SRI and Bob Mislevy, UMD) 2007 - 2012
- Editorial Board, Applied Measurement in Education, since 2007
- Editorial Board, Journal of Applied Testing Technology, since 2009
- Board of Directors, NERA, 2003 –2006
- Chair, NCME Recruitment Committee, 2004 –2006
- Co-Chair, NCME Committee on Assessment Policy, 2009 - present
- Co-Chair, AERA Division D Program, 2007 - 2008
- Co-Editor, *NERA Researcher*, 2002 –2005
- Program co-chair, NERA, 2006
- Member, AERA Division D Program Committee, 2008 - 2009
- Member, NCME Committee on Diversity, 2003 –2004
- Member, NCME Recruitment Committee, 2003
- Member, AERA Division D Mentor Committee, 2005 - 2009
- Reviewer for International Journal of Testing (since 2004), Educational Assessment and Evaluation (since 2004), Educational Measurement Issues and Practice (since 2006)
- Reviewer for AERA and NCME conference papers (since 1997) and reviewer for NERA conference papers (since 2000)

- Regular organizer, chair and discussant at AERA, CCSSO/NCSA, NCME and NERA annual meetings

PUBLICATIONS

- Huff, K.,** & Perie, M. (in press). Determining Content and Cognitive Skills for Achievement Tests. In Lane, S. and Haladyna, T. (Eds.). *Handbook of Test Development, 2nd edition* (in press). Routledge: New York, NY.
- Ercikan, K., Seixas, P., Kaliski, P., & **Huff, K.** (2015). Use of Evidence Centered Design in Assessment of History Learning. In H. Braun (Ed.). *Meeting the Challenges to Measurement in an Era of Accountability*. NCME Book Series. Routledge: New York, NY.
- Schneider, M.C., **Huff, K.**, Egan, K.L, Gaines, M.L., & Ferrara, S. (2014). Relationships between item cognitive complexity, contextual response demands, and item difficulty. *Educational Assessment*.
- Nebelsick-Gullet, L., Farrar, C., **Huff, K.**, Packman, S., (2014). Design of Interim Assessment for Instructional Purpose: A Case Study Using Evidence Centered Design in Advanced Placement in Informing the Practice of Teaching Using Formative and Interim Assessment- A Systems Approach (Ed.) Lissitz, R.W.
- Andrade, H., **Huff, K.**, & Brooke, G. (2013). Using assessment to motivate learners. In R. Wolfe, A. Steinberg, & N. Hoffman (Eds.). *Anytime, anywhere: Student-centered learning for schools and teachers*. Cambridge, MA: Harvard Education Press.
- Huff, K.**, Alves, C., Pellegrino, J. & Kaliski, P. (2013). Using Evidence-Centered Design Task Models in Automatic Item Generation. In Gierl, M. and Haladyna, T. (Eds.). *Automatic Item Generation: Theory and Practice* (pp. 102-118). Routledge: New York, NY.
- Ewing, M., **Huff, K.**, & Kaliski, P. (2010). Validating AP Exam Scores: Current Research and New Directions. In Sadler, P., Sonnert, G., Tai, R., & Klopfenstein, K. (Eds.), *AP: A Critical Examination of the Advanced Placement Program*. Harvard Education Press.
- Hendrickson, A., **Huff, K.**, & Luecht, R.M. (2010). Claims, evidence and achievement level descriptions as a foundation for item design and test specifications. *Applied Measurement in Education, 23*: 4, 358–377.
- Huff, K.**, & Melican, G. (2010), Innovation within constraints: Revising a large-scale college placement exam. In J. A. Bovaird, K. Geisinger, & C. Buckendahl (Eds.), *High stakes testing in education: Science and practice in K-12 settings*. Washington, DC: APA Books.
- Huff, K.** & Plake, B. (2010). Evidence-centered Assessment Design in Practice. Guest Editors, special issue in *Applied Measurement in Education, 23*: 4, 307 – 309.
- Huff, K.**, & Plake, B. S. (2010) Innovations in Setting Performance Standards for K-12 Test-Based Accountability, *Measurement: Interdisciplinary Research & Perspective, 8*(2), 130-144.

- Huff, K.**, Steinberg, L., & Matts, T. (2010). The promise and challenge of implementing ECD in Large Scale Assessment. *Applied Measurement in Education*, 23: 4, 310 – 324.
- Packman, S., Camara, W.J., & **Huff, K.** (2010). A Snapshot of Industry and Academic Professional Activities, Compensation, and Engagement in Educational Measurement. *Educational Measurement: Issues and Practice*, 29(3), 15-24.
- Plake, B., **Huff, K.**, & Reshetar, R. (2010). Evidence-centered Assessment Design as a foundation for achievement level descriptions and standard setting. *Applied Measurement in Education*, 23: 4, 342–357.
- Huff, K. L.**, Powers, D. E., Kantor, R. N., Mollaun, P., Nissan, S., & Schedl, M. (2008). Prototyping a new test. In Chapell, C. A., Enright, M. K., & Jamieson, J. M. (Eds.), *Building a Validity Argument for the Test of English as a Foreign Language™*. Routledge: New York.
- Huff, K. L.** & Goodman, D. (2007). Demand for Cognitively-based Assessment. In J. Leighton & M. Gierl (Eds.), *Cognitive Diagnostic Assessment*. London: Cambridge University Press.
- VanderVeen, A., **Huff, K.**, Gierl, M., McNamara, D. S., Louwerse, M., & Graesser, A. (2007). Developing and validating instructionally relevant reading competency profiles measured by the Critical Reading section of the SAT Reasoning Test™. In D. S. McNamara (Ed.), *Reading Comprehension Strategies: Theories, Interventions, and Technologies*. Lawrence Erlbaum Associates: New York.
- Ewing, M., **Huff, K.**, Andrews, M., & King, K. (2006). *Alternate forms reliability study for New SAT skills report*. College Board Research Report.
- Huff, K.L.** (2006). Review of Automated Essay Scoring: A Cross-Disciplinary Perspective. *International Journal of Testing*.
- O’Neil, T., Sireci, S.G., & **Huff, K.** (2004). Evaluating the content validity of a state-mandated science assessment across two successive administrations of a state-mandated science assessment. *Educational Assessment and Evaluation*.
- Powers, D.E., Roeber, C., **Huff, K.**, & Trapani, C.S. (2003). *Validating LanguEdge courseware scores against faculty ratings and student self-assessments*. ETS Research Report (RR-03-11). Princeton, NJ: ETS.
- Huff, K.L.**, & Sireci, S.G. (Fall 2001). Validity Issues in Computer Based Testing. *Educational Issues: Measurement and Practice*, 20(3).
- Huff, K.L.**, & Fang, D. (1999). When are students most at risk of encountering academic difficulty? A study of the 1992 matriculants to U.S. medical schools. *Academic Medicine*, 74, 453-460.
- Huff, K.L.**, Koenig, J.A., Treptau, M. M., & Sireci, S.G. (1999). Validity of MCAT scores for predicting clerkship performance of medical students grouped by sex and ethnicity. *Academic Medicine*, 74, S41-S44.

SELECTED TECHNICAL REPORTS

- Huff, K. L.,** & Hambleton, R. K. (2001). The detection and exclusion of differentially functioning anchor items (Research Report 415). Amherst, MA: Laboratory of Psychometric and Evaluation, University of Massachusetts.
- Sireci, S.G., Hambleton, R.K., **Huff, K.L.,** Jodoin, M.G. (2000). Setting standards on licensure exams using direct consensus. Laboratory of Psychometric and Evaluative Methods Research Report No. 395. Amherst, MA: University of Massachusetts.
- Huff, K.L.,** Price, M.A., Baker, W.K., McKenzie, C.S., & Jaeger, R.M. (1996). An analysis of the degree of adverse impact in the National Board for Professional Teaching Standards' 1994-95 Middle Childhood Generalist assessment. Greensboro, N.C.: National Board for Professional Teaching Standards, Technical Analysis Group, Center for Educational Research and Evaluation, University of North Carolina at Greensboro.
- Jaeger, R. M., & **Huff, K.L.** (1996). Estimates of the effects of alternative scoring rules for the National Board for Professional Teaching Standards' Early Childhood Generalist Assessment. Greensboro, N.C.: National Board for Professional Teaching Standards, Technical Analysis Group, Center for Educational Research and Evaluation, University of North Carolina at Greensboro.

VITA
SUZANNE LANE
sl@pitt.edu

EDUCATION

- Ph.D. (Major: Research Methodology, Measurement, and Statistics, Minor: Learning and Development), School of Education, The University of Arizona, 1986.
M.Ed. (Measurement and Statistics), School of Education, The University of Arizona, 1982.

RESEARCH INTERESTS

Educational measurement and testing, in particular, design, validity and technical issues related to assessment and accountability systems (including performance-based assessments)

EMPLOYMENT HISTORY

- 1998-present Professor. Research Methodology Program, Department of Psychology in Education, University of Pittsburgh, Pittsburgh, PA.
1992- 1998 Associate Professor. Research Methodology Program, Department of Psychology in Education, University of Pittsburgh, Pittsburgh, PA.
1989- 1997 Faculty Associate, LRDC. Assessment Coordinator, Quantitative Understanding: Amplifying Student Achievement and Reasoning (QUASAR), Project Funded by the Ford Foundation, University of Pittsburgh, Pittsburgh, PA.
1986-1992 Assistant Professor. Research Methodology Program, Department of Psychology in Education, University of Pittsburgh, Pittsburgh, PA.
1985-1986 Research Assistant. Arizona Center for Educational Evaluation and Measurement, University of Arizona, Tucson, AZ.

GRANTS/CONTRACTS

- 2012-2014 Principal Investigator, *Research on the Effectiveness of a remote coaching model*, Bill and Melinda Gates Foundation (\$293,327)
2012-2013 Principal Investigator, *Research/Evaluation of the Teacher Evaluation Project for the Pennsylvania Department of Education*, PDE and US Department of Ed *Race to the Top Funding* (\$189,315)
2010-2011 Principal Investigator, *Research/Evaluation Work Plan for a Teacher and Principal Evaluation Project for the Pennsylvania Department of Education*, Team PA Foundation and Bill and Melinda Gates Foundation (\$80,000)
2010 Principal Investigator, *Common Core Alignment Study*, Pennsylvania Department of Education (\$62,384)
2009-2011 Co-Investigator, *Evaluating competency based education and assessment in clinical and translational science*, National Institutes of Health (\$114, 340)
2006-2007 Co-Investigator with Clem Stone (PI), *Augmenting subscale scores for the Delaware State Assessment Program*, State Department of Delaware (\$9,500)
2006 Principal Investigator, *Evaluation of the six quality assessment criteria used in the Nebraska School-based Teacher-led Assessment and Reporting System (STARS)*, Nebraska Department of Education (\$15,000)
2006 Co-Principal Investigator with Laura Scholl (Co-PI), *Evaluation of the Keys2Work Math Gain Research*, Pittsburgh, PA (\$5,000)
2005-2006 Principal Investigator, *Word Analysis Validation Study*, Pearson Learning Group (\$10,000)
2003 Co-Principal Investigator with Andrew Weisner (Co-PI), *Evaluating the Predictive Validity of the SAT using HLM*, College Board (\$7,000)
2001-2004 Principal Investigator, *Assessing the Consequences of the Pennsylvania System of School Assessment*, Pennsylvania Department of Education (\$677,798)

- 1995-2000 Principal Investigator, *Consequences of the Maryland State Performance Assessment Program*, U.S. Department of Education (\$776,993.00)
- 1989- 1996 Assessment Coordinator, Quantitative Understanding: Amplifying Student Achievement and Reasoning (QUASAR), Ford Foundation (\$5,000,000.00). Edward Silver, Principal Investigator.
- 1991 VAXstation for Psychometric Analyses, Faculty Computing Proficiency Enhancement Program: Individual Faculty Projects, Academic Computing, University of Pittsburgh (\$9,680.00).
- 1989 Principal Investigator, *Diagnostic Tutor and Assessment System for Solving Algebra Word Problems*, Buhl Foundation, School of Education, University of Pittsburgh (\$10,000)
- 1989 Principal Investigator, *Writing Competency Assessment Program (CAP)*. Chicago, IL: Devry Technical Institute (\$2,000)
- 1987 Principal Investigator, *Item Response Models for Validating Cognitive Skill Sequences*, School of Education, University of Pittsburgh (\$2,000)

PROFESSIONAL APPOINTMENTS/ELECTIONS/AWARDS

- 2016- present ETS Visiting Panel
- 2014-2016 National Academy of Sciences – National Research Council, Committee on the Evaluation of NAEP Achievement Levels
- 2014-2018 GRE Board’s Research Committee, ETS
- 2013- 2015 U.S. Department of Education Race to the Top Technical Review Panel (appointed)
- 2014-2017 Member, Committee for the NCME Career Contributions Award
- 2013-present Member, Committee for the NCME Mission Fund
- 2013 Honoree for Teaching, Research and Service, University of Pittsburgh
- 2012-2014 Chair, Committee for the NCME Career Contributions Award
- 2011 AERA Award for Outstanding Reviewer
- 2011 Honoree for Teaching, Research and Service, University of Pittsburgh
- 2010 AERA Fellow (elected)
- 2009-2013 Committee for Robert L. Linn Distinguished Research Award
- 2008-2011 National Technical Advisory Council, U.S. Department of Education (appointed)
- 2008-2011 Nominations Committee, NCME
- 2006-2009 Committee on the NCME Career Contributions Award
- 2005-2016 Management Committee, Revision of the *Standards for Educational and Psychological Testing*
- 2005-2006 AERA Division D Nominating Committee
- 2005-2006 Co-chair, Committee on the NCME Career Contributions Award
- 2002-2005 Executive Council, National Council of Measurement in Education (NCME)
- 2003-2004 President, National Council of Measurement in Education (NCME)
- 2002-2003 President-Elect, National Council of Measurement in Education (NCME)
- 2003-2006 National Research Council, Committee on Test Design for K-12 Science Achievement
- 2002-2003 President Elect, National Council of Measurement in Education (NCME)
- 2002-2003 Chair, AERA Palmer O. Johnson Memorial Award Committee.
- 2001-2002 AERA Palmer O. Johnson Memorial Award Committee.
- 2000-2002 Vice President, Division D, American Educational Research Association
- 1999-2002 Board of Directors of the National Council of Measurement in Education (NCME)
- 1997-1999 Editor, d’News, Division D, American Educational Research Association
- 1997-1999 Secretary, Division D, American Educational Research Association
- 1997-1998 Committee for the NCME Award for Career Achievement
- 1993-1998 Joint Committee on Revision of the *Standards for Educational and Psychological Testing*
- 1993-1994 Chair, Committee for NCME Award for Best Technical Contribution to Educational Measurement
- 1992-1993 Program co-chair, Annual Meeting of the National Council of Measurement in Education

EDITORIAL ACTIVITIES

- 2011-present Co-Editor, *Handbook of Test Development*, Routledge.
- 2011-present Editorial Board, NCME Book Series
- 2010-present Editorial Board, *Educational Measurement: Issues and Practice*

2010-present Editorial Board, *Educational Researcher*
 2001-present Editorial Board, *Educational Assessment*
 2001-2003 Editorial Board, *American Educational Research Journal*
 2000-2003 Editorial Board, *Educational Researcher*
 1998-present Board of Advisory Editors, *Journal of Educational Measurement*
 1994-present Board of Editors, *Applied Measurement in Education*
 1991-1994 Advisory Board, *Educational Measurement: Issues and Practice*
 1989-1991 Associate Editor, *Educational Measurement: Issues and Practice*

ADVISORY COMMITTEES

2014-present Research Advisory Committee, College Board
 2014-present Technical Advisory Committee (TAC), AP Exams, College Board
 2014-present TAC, National Board of Professional Teaching Standards
 2011-present TAC, PARCC
 2011-present TAC, National Longitudinal Transition Study 2012, Mathematica
 2011-present TAC, Tennessee Department of Education
 2010-present TAC, Texas Department of Education
 2010-present TAC, Alternate Assessment Consortium, National Center & State Collaborative
 2010 Review Panel, Common Core Standards, NGA and CCSSO
 2010-2015 Advisory Board, Embedded Assessments, University of Illinois (Director: Jim Pellegrino-NSF)
 2009-2013 Board of Examiners, American Institute of Certified Public Accountants (AICPA)
 2009-present TAC, Cognitively Based Assessment of, for, and as Learning (CBAL), ETS
 2009-present Science Advisory Board, PSI Services
 2008-2009 Expert Panel, Alternate Assessments Based on Modified Achievement Standards, NY State Department of Education and the Center for Assessment
 2007-2013 Member/Chair, Psychometric Oversight Committee, AICPA
 2006-2007 ETS Constructed Response Design Advisory Panel
 2006-2010 National Center for Educational Outcomes Technical Working Group, University of Minnesota
 2006-2008 Chair (2008), College Board's Advisory Committee on Research,
 2006-2012 GRE® Technical Advisory Committee (TAC)
 2005-2008 Co-chair, Technical Working Group, Evaluation of U.S. Department of Education's NAEP
 2004-present Technical Advisory Group, New York State Department of Education
 2001-present Technical Advisory Panel, New Jersey State Department of Education
 2001-present Technical Advisory Panel, Delaware State Department of Education
 2001-2003 Advisory Panel, Evaluation of the California High School Exit Examination
 2000-2004 Board of Trustees for the Foundation of Excellence, North Allegheny School District, PA
 2000-2001 Standards Advisory Panel, Educational Testing Service
 1999-2004 Member, Board of Trustees for the National Center for the Improvement of Educational Assessment
 1999-2007 National Technical Advisory Panel on Assessment and Accountability, Kentucky State Department
 1999-present Technical Advisory Committee, Pennsylvania State Department of Education
 1998-2000 Technical Advisory Committee, Voluntary National Test, American Institute of Research, DC
 1998-1999 National Technical Working Group, Kentucky State Department of Education
 1996-1999 Advisory Committee for Research and Development, College Board, NY
 1994 Joint Research Committee, National Council of State Boards of Nursing/Educational Testing Service
 1994-1996 Models of Authentic Assessment Working Group, National Center for Research in Mathematical Sciences Education, Wisconsin Center for Educational Research, University of Wisconsin-Madison

PROFESSIONAL PUBLICATIONS- Contributions to National Committee Documents and Books

Technical Working Group, (2008), *Evaluation of the National Assessment of Educational Progress: Technical Working Group Prologue*. Suzanne Lane and Bruno Zumbo (Co-chairs)
 National Research Council (2006) *Systems for State Science Assessments*, NRC: Washington, DC.

American Educational Research Association, American Psychological Association, National Council on Measurement in Education (1999). *Standards for Educational and Psychological Testing*. AERA, DC

PROFESSIONAL PUBLICATIONS (Sample)

- Lane, S. & Iwatani, E. (2016). Design of Performance Assessments in Education. In S. Lane, M.R. Raymond, & T.M. Haladyna (Eds.). *Handbook of Test Development* (2nd ed.) (pp. 274-293). New York: Routledge.
- Lane, S., Raymond, M.R., and Haladyna, T.M. (2016). Test Development Process. In S. Lane, M.R. Raymond, & T.M. Haladyna (Eds.). *Handbook of Test Development* (2nd ed.) (pp. 3-18). New York: Routledge.
- Lane, S. Raymond, M.R., and Haladyna, T.M. (2016; Eds.). *Handbook of Test Development* (2nd ed.). New York: Routledge.
- Lane, S. (2016). Performance assessment and accountability: Then and Now. In C. Wells & M. Faulkner-Bond (Eds.). *Educational Measurement: From Foundations to Future* (pp. 356-372). New York: Guilford.
- Lane, S. & DePascale, C. (2016). Psychometric considerations for performance-based assessments and student learning objectives. In H. Braun (Ed.), *Meeting the Challenges to Measurement in an Era of Accountability* (pp. 77-106). New York: Routledge.
- Lane, S. & Leventhal, B. (2015). Psychometric challenges in assessing English language learners and students with disabilities. *Review of Research in Education*, 39, 165-215.
- Lane, S. (2014). Performance assessment: The state of the art. In L. Darling-Hammond (Ed.), *Beyond the Bubble Test: How Performance Assessments Support 21st Century Learning* (pp. 133-184). San Francisco, CA: Jossey-Bass.
- Lane, S. (2014). Validity evidence based on testing consequences, *Psicothema*, 26(1), 127-135.
- Lane, S. (2013). The need for a principled approach to examining indirect effects of test use. *Measurement: Interdisciplinary Research and Perspectives*, 11(1-2), 44-47.
- Lane, S. (2013). Security Issues in Writing Assessment. In J.A. Wollack and J. Fremer (Eds.), *Handbook of Test Security* (pp. 101-123). New York, NY: Routledge.
- Lane, S. (2013). Performance Assessment in Education. In K.F. Geisinger, *APA Handbook of Testing and Assessment in Psychology*. Washington, DC: APA.
- Lane, S., (2012). Consequences of Assessment and Accountability Systems are Integral to the Argument-Based Approach to Validity. *Measurement: Interdisciplinary Research and Perspectives*, 10(1-2), 71-74
- Lane, S. (2012). Performance-based Assessment. In J.H. McMillan (Ed.), *SAGE Handbook of Research on Classroom Assessment* (pp.313-330). Thousand Oaks, CA: SAGE.
- Lane, S. (2011). Validity and Technical Issues in the Assessment of Higher Order Thinking Skills. In G. Schraw, *Assessment of Higher Order Thinking Skills* (pp. 263-302). Charlotte, NC: IAP-Information Age Publishing.
- Lane, S. (2010). *Performance assessment*. Stanford, CA: Stanford University, Stanford Center for Opportunity Policy in Education.
- Stone, C.A., Ye, F., Zhu, X., & Lane, S. (2010). Providing subscale scores for diagnostic information: A case study when the test is essentially unidimensional. *Applied Measurement in Education*, 23(1), 63-86.
- Lane, S., Zumbo, B.D. et al. (2009). An introduction to the evaluation of NAEP. *Applied Measurement in Education*, 22, 309-316.
- Lane, S. & Tierney, S. T. (2008). Performance Assessment. In T. Good (Ed.), *21st Century Education*. Thousand Oaks, CA.: SAGE.
- Parke, C. S. & Lane, S. (2008). Examining alignment between state performance assessment and mathematics classroom activities. *Journal of Educational Research*, 101(3), 132-147.
- Camara, W. & Lane, S. (2006). A Historical Perspective and Current Views on the Standards for Educational and Psychological Measurement. *Educational Measurement: Issues and Practice*, 25(3), 35-42.
- Lane, S. & Stone, C.A. (2006). Performance Assessments. In B. Brennan (Ed.), *Educational Measurement*. New York: American Council on Education & Praeger.
- Parke, C. S., Lane, S., & Stone, C. A. (2006). Impact of a state performance assessment program in reading and writing. *Educational Research and Evaluation*, 12(3), 239-269.
- Stone, C.A., Weissman, A., & Lane, S. (2005). Consistency of Student Proficiency Classifications Under Competing IRT Models for a State Assessment Program. *Educational Assessment*, 10(2), 125-146.
- Lane, S. (2004). Validity of high stakes assessment: Are students engaged in complex thinking? *Educational Measurement: Issues and Practice*, 23(3), 6-14.

- Stone, C.A. & Lane, S. (2003) Consequences of a state accountability program: Examining relationships between school performance gains and teacher, student, and school variables. *Applied Measurement in Education*, 16(1),
- Lane, S., Parke, C.S., & Stone, C.A. (2002). The Impact of a State Performance-Based Assessment and Accountability Program on Mathematics Instruction and Student Learning: Evidence from Survey Data and School Performance. *Educational Assessment*, 8(4), 279-315.
- Lane, S., & Stone, C.A. (2002) Strategies for Examining the Consequences of Assessment and Accountability Programs. *Educational Measurement: Issues and Practice*, 21(1), 23-30.
- Lane, S., & Silver, E.A. (1999). Fairness and equity in measuring student learning using a mathematics performance assessment. In M. T. Nettles (Ed.) *Equity and Excellence in Educational Testing and Assessment*,
- Lane, S., Parke, C. S., & Stone, C.A. (1998). A Framework for Evaluating the Consequences of Assessment Programs. *Educational Measurement: Issues and Practice*, 17(2), 24-28.
- Lane, S., Wang, N., & Magone, M. (1996). Gender related differential item functioning on a middle school mathematics performance assessment. *Educational Measurement: Issues and Practice*, 15(4), 21-27, 31.
- Lane, S., Liu, M., Ankenmann, R. D., & Stone, C. A. (1996). Generalizability and validity of a mathematics performance assessment. *Journal of Educational Measurement*, 33(1), 71-92.
- Wang, N., & Lane, S. (1996). Detection of gender-related differential item functioning (DIF) in a mathematics performance assessment. *Applied Measurement in Education*, 9(2), 175-199.
- Stein, M.K. & Lane, S. (1996). Instructional tasks and the development of student capacity to think and reason: An analysis of the relationship between teaching and learning in a reform mathematics project. *Educational Research and Evaluation*, 2(1), 50-80.
- Lane, S., Stone, C. A., Ankenmann, R. D., & Liu, M. (1995). Examination of the assumptions and properties of the graded item response model: An example using a mathematics performance assessment. *Applied Measurement in Education*, 8(4), 313-340.
- Lane, S., & Silver, E. A. (1995). Equity and validity considerations in the design and implementation of a mathematics performance assessment: The experience of the QUASAR project. In M. T. Nettles (Ed.) *Equity and Excellence in Educational Testing and Assessment*, p. 185-220.
- Lane, S., & Glaser, R. (1994). Assessment in the service of learning. In E. De Corte (Ed.) *The International Encyclopedia of Education* (2nd ed.), p. 370-376.
- Lane, S., Stone, C., Ankenmann, R., Liu, M. (1994). Reliability and validity of a mathematics performance assessment. *International Journal of Educational Research*, 21(3), p. 247-266.
- Lane, S. (1993). The conceptual framework for the development of a mathematics performance assessment instrument. *Educational Measurement: Issues and Practice*, 12(2), 16-23.
- Silver, E. & Lane, S. (1993). Assessment in the context of mathematics instructional reform: The design of assessment in the QUASAR project. In M. Niss (Ed.), *Cases of Assessment in Mathematics Education*, 59-69.
- Rosser, R. A., Chandler, K., & Lane, S. (1993). Children's computation of viewpoint from locational descriptions: Initial steps in the coordination of perspectives. *Child Study Journal*, 23(1), 1-16.
- Lane, S. (1991). Use of restricted item response models for examining item difficulty ordering and slope uniformity. *Journal of Educational Measurement*, 28(4), 295-309.
- Stone, C.A., & Lane, S. (1991). Use of restricted item response models for examining the stability of item parameter estimates over time. *Applied Measurement in Education*, 4(2), 125-141.
- Nitko, A.J., & Lane, S. (1991). Solving problems is not enough: Assessing and diagnosing the ways in which students organize statistical concepts. (467-474) *Proceedings of the Third International Conference on Teaching Statistics* (Vol 1). International Statistical Institute: Voorburg, The Netherlands.
- Lane, S. (1991). Assessing students' knowledge structures. *Educational Measurement: Issues and Practice*, 10(1), 31-33.
- Rosser, R.A., Lane, S., Smith-Kinslow, S.L. (1991). Children's use of atypical transformational solution strategies on mental rotation problems. *Journal of Genetic Psychology*.
- Nitko, A., & Lane, S. (1990). Standardized Multilevel Survey Achievement Batteries. In C.R. Reynolds and R.W. Kamphaus (Ed:), *Handbook of Psychological and Educational Assessment of Children: Intelligence and Achievement* (Vol 1), p. 405-434.
- Bean, R., & Lane, S. (1990). Implementing curriculum-based measures of reading in an adult literacy program. *Remedial and Special Education*, 11(5), 39-46.

Richard Lesh, Ph.D.
Emeritus Rudy Distinguished Professor of Learning Sciences
Indiana University

Specializations:

Ph.D. in Mathematics & Psychology. Specializations in Research, Development & Assessment focusing on Teaching, Learning, & Problem Solving in Mathematics & Science. Mathematical & Scientific Models & Modeling. Mathematics Teacher Education. Computer-based Curriculum Development. Research Design & Assessment Design in Education.

Appointments:

2012-Present: Rudy Distinguished Professor Emeritus, Indiana University
2004-2012: Rudy Distinguished Professor of Learning & Cognitive Sciences, Indiana University.
Dept. Chair for Learning Sciences
1998-2004: R.B. Kane Distinguished Professor of Engineering and Education, Purdue University.
Dean for Research, Director of the Center for Twenty-first Century Conceptual Tools
1995-1998: Professor of Mathematics, University of Massachusetts-Dartmouth. Director, School
Mathematics & Science Center
1989-1995: Principal Scientist for Research, Educational Testing Service. Director of ETS's Center
for Technology-Based Assessment. Visiting Professor Princeton University
1983-1989: Director for Mathematics & Science Curriculum Development, World Institute for
Computer-Assisted Teaching (WICAT-IBM)
1977-1983: Professor of Mathematics & Education, Northwestern University. Dean for Research &
Program Development, Director of the Center for the Teaching Professions.
1974-1977: Associate Professor of Mathematics & Education, Northwestern University. Chair of the
Department for Development, Learning and Instruction
1971-1974: Assistant Professor of Mathematics & Education, Northwestern University
1971: Ph.D. in Mathematics & Psychology, Indiana University

Professional Activities:

1989-Present: Founding Associate Editor, International Journal for Mathematical Thinking & Learning
1978: Co-Founder, North American professional organization: Psychology of Mathematics
Education (PME/NA)
1978: Founder, Research Pre Sessions to the National Council of Teachers of Mathematics
annual meeting
1977-1978: Chair, American Educational Research Association's Special Interest Group for Research
in Mathematics Education (AERA/SIG/RME)
1977: Member of the Founding Executive Committee for the international professional
organization: Psychology of Mathematics Education (PME)
1974-1975: Co-Director, Program for Research on Teaching & Learning in STEM Education,
National Science Foundation
1974: Chair, Long Range Planning Task Force for a Program for Research in STEM Education
(which was the NSF's first program for research in STEM education)
1995-1998: Program Co-Director, Program for Research on Teaching & Learning in STEM
Education

Publications & Projects:

More than 120 Articles in Referred Professional Journals
More than 50 Chapters in Other Professional Publications
More than 25 Books or Monographs
Director or PI on more than \$30 million in R&D projects at universities, and at ETS and WICAT

Curriculum Vitae

Richard M. Luecht, Ph.D.

Home: 5204 Southwind Road
Greensboro, NC 27455
rmluecht@gmail.com
(336) 404-0746

Work: Department of Educational Research Methodology
240 School of Education Building
University of North Carolina at Greensboro
Greensboro, NC 27402-6170
rmluecht@uncg.edu

Education: Ph.D. received 1989, University of Wisconsin at Milwaukee

Richard M. Luecht, PhD, is a tenured, full-tank **Professor** of Educational Research Methodology at the University of North Carolina at Greensboro (UNCG) where he teaches graduate courses in applied statistics and advanced measurement. He is also the owner of Luecht Assessment Technology Services, LLC, a limited liability corporation established in North Carolina.

His research interests involve applying engineering designs principles to assessment constructs and task design, advanced psychometric modeling of response data, and scoring issues related to diagnostic and formative assessments. He has developed a comprehensive framework called **Assessment Engineering (AE)**. Professor Luecht has published numerous articles and book chapters on technical measurement issues. He has been a technical consultant and advisor for many state department of education testing agencies and large-scale testing organizations, including New York, Pennsylvania, Delaware, Georgia, North

Carolina, South Carolina, New Jersey, Puerto Rico, The College Board, Act, Inc., Educational Testing Service, HUMRRO, the Partnership for Assessment of Readiness for College and Career (PARCC), the National Center and State Collaborative (NCSC), the American Institute of Certified Public Accountants, the National Board on Professional Teaching Standards, Cisco Corporation, the Defense Language Institute, the National Commission on the Certification of Physicians Assistants, the Medical Council of Canada, and the American Board of Dermatology.

Dr. Luecht has been an active participant at the National Council of Measurement in Education (NCME), American Educational Research Association (AERA), Association of Test Publishers (ATP) and International Psychometric Society meetings, teaching workshops and giving presentations on topics such as assessment engineering and principled assessment design, computer-based testing, multistage testing design and implementation, standard setting, automated test assembly, IRT calibration, scale maintenance and scoring, designing complex performance assessments, diagnostic testing, multidimensional IRT, and language testing.

Before joining the UNCG faculty, Dr. Luecht was the Director for Computerized Adaptive Testing Research and Senior Psychometrician at the National Board of Medical Examiners (NBME), in Philadelphia, where he oversaw psychometric processing for the United States Medical Licensing Examination (USMLE) Step and numerous subject examinations, as well being instrumental in the design of systems and technologies for the migration of the United States Medical Licensing Examination programs to computerized delivery. He has also designed software systems and algorithms for large-scale automated test assembly and devised a computerized adaptive multistage testing implementation framework that is used by a number of large-scale testing programs. Prior to working at the NBME, Dr. Luecht was a Research Scientist and Psychometrician at ACT, Inc., in Iowa. His most recent work involves the development of a comprehensive framework and

associated methodologies for a new approach to large-scale formative assessment design and implementation called *assessment engineering* (AE).

GRADUATE COURSES DEVELOPED AND TAUGHT AT UNCG

1. ERM-675: Data Presentation and Reporting (2003 to present)
2. ERM-727: Computer-Based Testing: Methods and Applications (2007 to present)
3. ERM-629: Item Response Theory (2000 to present)
4. ERM-729: Advanced Item Response Theory (2005 to present)
5. ERM-726: Advanced Measurement Topics: Assessment Engineering (2006, 2010, 2012)
6. ERM-726: Advanced Measurement Topics: Standard Setting (2004, 2008, 2011)
7. ERM-734: Test Equating (2012 to present)
8. ERM-728: Exploratory and Confirmatory Factor Analysis (2003 to present)
9. ERM-667: Foundations of Educational Measurement (1999 to present)
10. ERM-668: Survey Sampling and Research (2002 to 2013)
11. ERM-731: Structural Equating Modeling (1999 to 2005)
12. ERM-617: Statistical Methods for Education (1999 to 2005)
13. ERM-681: Intermediate Statistical Methods for Education (1999 to 2005)

SELECTED PUBLICATIONS & RECENT PROFESSIONAL CONFERENCE PRESENTATIONS

1. Luecht, R. M. (March, 2016). *Some background and theory: Assessment engineering*. Invited presentation at the Annual Conference of the Association of Test Publishers, Orlando, Florida.
2. Luecht, R. M. (July, 2016). *Engineering design in the assessment world: a new paradigm for test design and development, with psychometric implications*. Invited keynote presentation at the International Meeting of the

Psychometric Society, Asheville, NC.

3. Luecht, R. M. (in press). Data and scale analysis for credentialing examinations. In S. Davis-Becker & C. Buckendahl (Eds.). *Testing in the professions* (chapter 7). New York: Taylor-Francis/Routledge.
4. Luecht, R. M. (in press). Professional certification and licensure. In J. Leighton & A. Rupp (Eds). *The handbook of cognitive assessment*, pp. 446-471. New York: Wiley.
5. Luecht, R. M. (2015). Computer-based test delivery models, data, and operational implementation issues. In F. Drasgow (Ed.), *Technology and testing*, pp. 179-205. New York: Routledge.
6. Luecht, R. M. (2015). Applications of item response theory: Item and test information functions for designing and building mastery tests. In S. Lane, M. Raymond & T. Haladyna (Eds.). *Handbook of test development 2nd edition*, pp. 485-506. New York: Routledge.
7. Luecht, R. M. (2014). Computerized adaptive multistage design considerations and operational issues (pp. 69-83). In D. Yan, A. A. von Davier & C. Lewis (Eds.) *Computerized multistage testing: Theory and applications*. Taylor-Francis.
8. Luecht, R. M. (2013). Assessment engineering task model maps, task models and templates as a new way to develop and implement test specifications. *Journal of Applied Testing Technology*, 14 (www.testpublishers.org/journal-of-applied-testing-technology).
9. Clark, D. B.; Martinez-Garza, M.; Biswas, G.; Luecht, R. M.; & Sengupta, P. (2012). Driving assessment of students' explanations in game dialog using computer-adaptive testing and hidden Markov modeling. In D. Ifenthaler; D. Eseryel; X. Ge (Eds.), *Assessment in game-based learning: Foundations, innovations, and perspectives*, pp. 173-200. New York: Springer.
10. Luecht, R. M. (2012). Computer-based and computer-adaptive testing. In K. Ercikan, M. Simon & M. Rousseau (Eds.), *Improving large scale assessment in education: Theory, issues, and practice*, pp. 91-114,. New York: Taylor-Francis/Routledge.

11. Luecht, R. M. (2012). An Introduction to assessment engineering for automatic item generation. In M. Gierl & T. Haladyna (Eds.). *Automatic item generation*. New York: Taylor-Francis/Routledge.
12. Luecht, R. M. (2012). Automatic item generation for computerized adaptive testing. In M. Gierl & T. Haladyna (Eds.). *Automatic item generation*. New York: Taylor-Francis/Routledge.
13. Luecht, R. M. (2012). Operational CBT implementation issues: Making it happen. In R. Lissitz & H. Jiao (Eds.), *Computers and their impact on state assessments: Recent history and predictions for the future*. Baltimore, MD: Information Age Publishers.
14. Raymond, M. R.; & Luecht, R. M. (2012). Licensure and certification testing. In K. F. Geisinger (Ed). *APA handbook of testing and assessment in psychology*. APA Publications.
15. Luecht, R. M. & Sireci, S. G. (2011). *A review of models for computer-based testing*. New York., NY: The College Board, Research Report, 2011-12.
16. Zenisky, A.; Hambleton, R. J.; & Luecht, R. M. (2010). Multistage testing: Issues, designs, and research. In W. J. van der Linden and C. E. W. Glas (Eds). *Elements of adaptive testing*, pp. 355-372. New York: Springer.
17. Luecht, R. M. (2007). Using information from multiple-choice distractors to enhance cognitive-diagnostic score reporting. In Jacqueline P. Leighton & Mark J. Gierl (Eds). *Cognitive diagnostic assessment for education: theory and applications*, pp. 319-340. London: Cambridge University Press,
18. Drasgow, F.; Luecht, R. M.; & Bennett, R. (2006). Technology and testing. In R. L. Brennan (Ed.), *Educational measurement, 4th edition*, pp. 471-515. Washington, DC: American Council on Education/Praeger Publishers.
19. Luecht, R. M. (2004). Multistage complexity in language proficiency assessment: A framework for aligning theoretical perspectives, test development, and psychometrics. *Foreign Language Annals*, 36(4), 518-526.

Mark E. Lyford

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Professional Preparation

Saint Olaf College	Biology, Music (minor, Environmental Studies)	B.A., 1993
Univ. of Wyoming	Rangeland Ecology and Watershed Management	M.S., 1995
Univ. of Wyoming	Botany (minor, Statistics)	Ph.D., 2001

Appointments

Special Assistant for Assessment and Accreditation, Office of Academic Affairs, University of Wyoming

2016 - present

Assistant Assessment Specialist, Office of Academic Affairs, University of Wyoming

2015-2016

Senior Lecturer, Department of Botany, University of Wyoming, Laramie, Wyoming

2009 – present

Director, Life Sciences Program, University of Wyoming, Laramie, Wyoming. January

2005 – 2016.

Assistant Lecturer, Department of Botany, University of Wyoming, Laramie, Wyoming.

January 2005 – present.

Acting Director, Biology Program, University of Wyoming, Laramie, Wyoming.

October 2003 – December 2004.

Temporary Assistant Lecturer, Department of Botany, University of Wyoming, Laramie, Wyoming. September 2001 – December 2004.

Post Doctoral Research Associate, Department of Renewable Resources, University of Wyoming, Laramie, Wyoming. January 2001 – August 2001.

Teaching Assistant, Department of Botany, University of Wyoming, Laramie, Wyoming.

September 2000 – December 2000.

Research Assistant, Department of Botany, University of Wyoming, Laramie, Wyoming.

September 1997 – August 2000.

Teaching Assistant, Department of Botany, University of Wyoming, Laramie, Wyoming.

September – May, 1995-1997.

Field and Laboratory Technician, Department of Botany, University of Wyoming, Laramie, Wyoming. June 1995 – August 1995.

Research Assistant, Department of Rangeland Ecology and Watershed Management, University of Wyoming, Laramie, Wyoming. September 1993 – May 1995.

Publications (relevant)

Reed, D., M.E. Lyford, 2014. Science Courses for Nonscience Majors: How Much Impact Can One Class Make? *Bulletin of the American Meteorological Society*, August.

Lyford, M.E. 2010. Energy Education from and Integrated Sciences Approach: Preparing Future Global Citizens, 2010 Annual Meeting of the Geological Society of America, Denver, CO.

Lyford, M.E., 2010 Biofuels: Our Energy Future?, *Cutting Edge Workshop Series, Teaching About Energy in Geoscience Courses: Current Research and Pedagogy*, 2010 Annual Meeting of the Geological Society of America, Denver, CO.

Lyford, M.E., J.D. Myers, and A. Buss. 2010. Fostering Scientific Literacy: Establishing Social Relevance via the Grand Challenges, 2010 American Geophysical Union Annual Meeting, San

- Francisco, CA.
- Myers, J.D., M.E. Lyford, and R.L. Mayes. 2010. Integrating Quantitative Reasoning into STEM Courses using an Energy and Environment Context, 2010 American Geophysical Union Annual Meeting, San Francisco, CA.
- Kleinsasser, A., and M.E. Lyford. 2010. Invitation to a Site Swap: High School Faculty Visit UW Classes, UW Faculty Visit High School Classes, Fall Wyoming School Improvement Conference, Cheyenne, WY.
- Lyford, M.E., J.D Myers and R. L. Mayes, 2009, QR-STEM: Energy and Environment as a Context for Improving QR and STEM Understandings of 6-12 Grade Teachers I. The Science, Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract ED33A-0548.
- Mayes, R. L., M.E. Lyford and J.D Myers, 2009, QR-STEM: Energy and Environment as a Context for Improving QR and STEM Understandings of 6-12 Grade Teachers II. The Quantitative Reasoning, Eos Trans. AGU, 90(52), Fall Meet. Suppl., Abstract ED33A-0549.

Synergistic Activities (in past 1-3 years)

NEXUS: Lyford has worked with Dr. James Myers, Alan Buss, and Ana Houseal (University of Wyoming) on a Dept. of Education Title II Math Science Partnership that provides professional development for K-16 teachers in several Wyoming school districts. The project focuses on improving scientific literacy by examining the grand challenges of Energy, water, and climate change. The professional development integrates science, math, and social sciences for a wide range of teachers (science, math, social studies, elementary, physical education, English, etc).

QR-STEM: Lyford has worked with Dr. Robert Mayes and Dr. James Myers (University of Wyoming) on a Dept. of Education Title II Math Science Partnership that provided professional development for middle- and high-school teachers in Wyoming. The project focused on improving the integration of Quantitative Reasoning into STEM classrooms and bringing STEM contexts to the math classroom. Participants included teachers from across the state and from both math and science backgrounds.

Biology Directors' Consortium: Lyford is the organizer and co-leader of the Biology Directors' Consortium, a group of faculty administrators from across the country who have leadership roles in overseeing undergraduate biology curricula. This group is working collaboratively to improve biology education by sharing best practices related to administration of large undergraduate curricula (e.g., TA training, fostering active learning in classrooms, program assessment). 25 institutions from across the country are current participants.

Wyoming K-16 Life Science Summit: Lyford has worked with Dr. Audrey Kleinsasser throughout the state of Wyoming to improve K-16 Biology Education. Lyford currently chairs a statewide K-16 Biology Education Advisory Group to plan and implement workshops and conferences that bring together K-16 teachers and administrators to work collaboratively to improve biology education.

Collaborators

Myers, J.D. (U. of Wyoming); Buskirk, R. (U. of Texas), Buss, A.R. (U. of Wyoming); Heitz, J. (U. of Wisconsin), Kleinsasser, A. (U. of Wyoming); Merrill, J. (Michigan State U.), Michaels, M. (U. of Illinois), Moore, J. (Colorado State Univ.); Parker, S. (U. of Wyoming); Philis, R. (U. of Massachusetts), Withers, M. (West Virginia U.).

Paul D. Nichols
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Iowa City, IA 52240
(319) 331-8167
paul.nichols@act.org

EDUCATION

The University of Iowa Iowa City, Iowa	1985-1990	Ph.D.	Educational Psychology
The University of Iowa Iowa City, Iowa	1983-1985	M.A.	Educational Psychology
The University of Iowa Iowa City, Iowa	1980-1983	B.S.	Psychology

RECENT PROFESSIONAL EXPERIENCE

2/2015 Senior Director, Distinguished Research Scientist

-Present

Research on Assessment and Learning
ACT
Iowa City, IA

Responsible for developing and implementing a research agenda which integrates the most recent findings from research in learning science, assessment and measurement and technological innovations with best practices in applied studies and assessment design across the ACT continuum of assessments. Works collaboratively with staff in Assessment Design and across areas in Research to design, develop and collect evidence to support innovative assessment for current and future assessments across a wide spectrum of areas (e.g., academic subject level assessments, general cognitive skills, behaviors and interests).

Lead in the creation of interpretive and use arguments and the evaluation of validity arguments. Lead in the planning, execution and documentation of evidence collection to provide an evidentiary basis to address claims and proposed uses associated with existing and new assessments. This includes working to determine the necessary types of evidence and studies (e.g., surveys, cognitive labs, think aloud, protocol analysis, qualitative methods) required within the practical constraints of existing assessment programs.

5/2012 PRINCIPAL RESEARCH SCIENTIST

-2/2015

Pearson
Iowa City, IA

Served in the Center for Next Generation Learning and Assessment supporting the research agenda and leading the evidence centered design efforts for the Performance Assessment Group in the Center for Next Generation Learning and Assessment.

Served as co-leader of the research project, Personalized Assessment, Teaching and Learning for the 21st Century (PATL), an 18 month project that is creating solutions and building capacity while developing a prototype for an integrated learning system of activities, personalized feedback, and professional development tied together by a common learning progression. This will result in scalable, efficacy-driven solutions and prototypes that can adapt to use outside the research environment.

Responsible as Project Director for the contract for Setting Achievement Levels for the NAEP Technology and Engineering Literacy Assessment with the National Assessment Governing Board. Served as the primary point of contact for Pearson staff and for the Governing Board and as the technical lead for the Pearson delivery team.

**12/2010
-4/2012**

SENIOR ASSOCIATE

Center for Assessment
Dover, NH

Responsible for consulting and research on a broad range of issues in educational measurement including:

- Planning and executing applied research in the measurement and testing field
- Advising on the planning and writing of RFPs and ITNs
- Supporting standard setting meetings
- Guiding diagnostic and learning progression-based assessment development
- Supporting innovative large-scale test development
- Advising on the development and implementation of an assessment theory of action

2008-12/2010 VICE PRESIDENT, RESEARCH SERVICES

Psychometric & Research Services

Pearson
Iowa City, IA

Responsible for management of the research agenda for Test, Measurement and Research Services. Responsibilities have been increased to include support by Test, Measurement and Research Services of Pearson-wide research in support of product development.

Additional responsibilities include:

- Planning and executing applied research in the measurement and testing field including research on formative and diagnostic assessment, standard setting, human and automated essay scoring, the comparability of paper-based and computer-based testing, remedial instruction and the cognitive processes of test takers
- Supporting the Pearson Test, Measurement & Research Services Research Agenda including development of agenda items, publicizing of agenda goals, organization of agenda research, and monitoring of progress.
- Supporting the presence of Pearson at the American Educational Research Association and the National Council on Measurement in Education annual conventions
- Organizing the Pearson Psychometric Services summer internship program
- Organizing the Pearson Research Grants Program to promote and support research by Pearson's research scientists
- Editing Pearson publications including the Research Reports and Bulletin series
- Identifying grant opportunities and organizing grant submission to federal departments (e.g., Department of Education, National Science Foundation, National Center for Educational Statistics) and private foundations
- Writing and reviewing text for proposals to provide services for large-scale state assessments

OTHER PROFESSIONAL ACTIVITIES

2011-2012

TECHNICAL ADVISOR

District of Columbia Comprehensive Assessment System

The District of Columbia Comprehensive Assessment System (DC CAS) is transitioning to the Common Core Standards. My role was to serve as a technical advisor on the DC CAS Technical Advisory Committee and assist in the transition to the Common Core Standards for the 2012 administration of the DC CAS.

2012

TECHNICAL STEERING COMMITTEE MEMBER

Colorado

Advised the Colorado Content Collaboratives on assessment design principles and on the

technical criteria to consider when utilizing assessments to evaluate student growth and teacher effectiveness.

2013

FACILITATOR

Workshop on the Application of Evidence Centered Design to Assessment for the Next Generation Science Standards

Coordinated meeting of the Science and Technical Issues in Large-Scale Assessment (TILSA) CCSSO State Collaborative on Assessment and Student Standards (SCASS)

September 25-26, 2013

A hands-on workshop attended by representatives from approximately 30 states addressing the application of Evidence Centered Design to the development of assessments for the Next Generation Science Standards.

2014

INSTRUCTOR

Application of Principled Design and Development in Large-scale Assessment
Professional Development Course

Annual conference of the American Educational Research Association

April 2, 2014

Philadelphia, PA

The course introduced participants to the use of principled approaches, including Evidence Centered Design and Principled Design for Efficacy, for assessment design, development and implementation. Participants reviewed a number of real world examples and completed hands-on exercises.

2013-2015

SECRETARY AND TREASURER

Cognition and Assessment Special Interest Group 167

American Educational Research Association

The Cognition and Assessment SIG presents researchers and practitioners with an opportunity for cross-disciplinary research (or research with cross-disciplinary implications) within education. The SIG is a group of scientists who are interested in better assessing cognition and are interested in leveraging cognitive theory and methods in the design and interpretation of tests. Their research features many different methods, including psychometric simulations, empirical applications, cognitive model development, theoretical rationales, and combinations of all of the above.

2016

CONFERENCE ORGANIZER

Conference on Assessment as Design Science

August 8 and 9, 2016

Iowa City, Iowa

Organized a conference, hosted by ACT, that involved seven thought leaders in the assessment field in a 12-week project to consider the potential of design science to successfully address challenges for large scale and classroom assessment raised by the next generation of assessments. Design science is the scientific study, using rigorous research methods from the social sciences, and creation of artefacts like serious education games and performance-based tasks as they are developed and used by people with the goal of solving problems and improving practices in peoples' lives. During the conference, presenters shared their experience learning about and shaping their attitude toward design science and their conclusions with regard to the potential of design science.

PROFESSIONAL AFFILIATIONS

American Educational Research Association

National Council on Measurement in Education

SELECTED PUBLICATIONS AND REPORTS

Nichols, P., & Huff, K. (in press). Assessments of complex thinking. In J. Pellegrino & K. Ercikan, *Validation of Score Meaning in the Next Generation of Assessments* Routledge: London

- Nichols, P., Lai, E., Koepfler, J., & Kobrin, J. (in press). The role of theories of learning and cognition in assessment design and development. In Jacqueline P. Leighton & Andre A. Rupp (Eds.), *Handbook of Cognition and Assessment*. Wiley.
- Ferrara, S., Lai, E., Reilly, A., & Nichols, P. (in press). Principled approaches to assessment design, development, and implementation. In Jacqueline P. Leighton & Andre A. Rupp (Eds.), *Handbook of Cognition and Assessment*. Wiley.
- Nichols, P., Ferrara, S., Lai, E. (2015). Principled design for efficacy: Design and development for the next generation tests. In R. W. Lissitz (Ed.), *The Next Generation of Testing: Common Core Standards, SMARTER-BALANCED, PARCC, and the Nationwide Testing Movement* (pp. 228-245). Charlotte, NC: Information Age Publishing.
- Nichols, P. D., & Ferrara, S (2014). *Introduction to the Learning Diamond*. Pearson Research Bulletin.
- Nichols, P. D. (2014). *What is PDE?* Pearson Research Bulletin.
- Nichols, P. D. & Depascale, C. (2013). Toward a Technical Theory for Systems for Learning: The Role of Information. In H. Jiao & R. W. Lissitz (Ed.), *Informing the practice of teaching using formative and interim assessment: A systems approach*. Charlotte, NC: Information Age Publishing.
- Nichols, P. D. (2011). Fulfilling the Promise of the Learning Triangle. *Measurement: Interdisciplinary Research & Perspective*, 9 (2-3), 163-165.
- Meyers, J. L, Davis, L. L, Keng, L. & Nichols, P. D. (2010). An evaluation of the feasibility of using automated essay scoring in the Texas Assessment Program. *TEA Technical Reports*.
- Nichols, P. D., Twing, J., O'Malley, K., & Mueller, C. (2010). Standard setting as a measurement process. *Educational Measurement: Issues and Practice*, 29 (1), 14-24.
- Nichols, P., & Fulkerson, D. (2010). *Informing Design Patterns Using Research on Item Writing Expertise (Large-Scale Assessment Technical Report 9)*. Menlo Park, CA: SRI International.
- Snow, E., Fulkerson, D., Feng, M., Nichols, P., Mislavy, R., & Haertel, G. (2010). *Leveraging Evidence-Centered Design in Large-Scale Test Development (Large-Scale Assessment Technical Report 4)*. Menlo Park, CA: SRI International.
- Way, W.D., Dolan, R.P., & Nichols, P. D. (2009). Psychometric challenges and opportunities in implementing formative assessment. In H.L. Andrade & G.J. Cizek (Eds.), *Handbook of Formative Assessment* (240-265). New York: Routledge.
- Fulkerson, D., Nichols, P. D., Haynie, K., & Mislavy, R. (2009). *Narrative Structures in the Development of Scenario-based Science Assessments (Large-Scale Assessment Technical Report 3)*. Menlo Park, CA: SRI International.
- Nichols, P. D., Meyers, J., & Burling, K. (2009). A framework for evaluating and planning assessments intended to improve student achievement. *Educational Measurement: Issues and Practice*, 28 (3), 14-23.
- Nichols, P. D., & Williams, N. (2009). Consequences of test score use as validity evidence: Roles and responsibilities. *Educational Measurement: Issues and Practice*, 28 (1), 3-9.

SELECTED PROFESSIONAL PRESENTATIONS

- Nichols, P. D., Elchert, D., & Colbow, A. (June, 2016). *Using tablets in large-scale assessment*. Paper presented at the annual meeting of the National Conference on Student Assessment,

Philadelphia, PA.

- Nichols, P. (2016, April). *Introduction to systems thinking*. Paper presented at the annual meeting of the American Educational Research Association, Washington, DC.
- Ferrara, S. & Nichols, P. (2014, October) *Principled design and development for embedding assessment in games and simulated environments: It's no game*. Paper presented at the 2014 Maryland Assessment Research Center Conference on Technology Enhanced Innovative Assessment, College Park, MD.
- Nichols, P., & Lai, E. R. (2014, April). *Inclusion of the conventions, practices and values of multiple stakeholders in a validity framework*. Paper presented at the annual meeting of the American Educational Research Association, Philadelphia, PA.
- Nichols, P., Lai, E. R., & Steedle, J. (2014, April). *A principled approach to designing reliability studies*. Paper presented at the annual meeting of the National Council of Measurement in Education, Philadelphia, PA.
- Nichols, P. D. (2013, April). *Resolving the contradiction between estimation of reliability and evidence for validity for standard-setting results*. Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA.
- Perie, M, & Nichols, P. D. (April, 2012). *Designing the NCSC assessment*. Paper presented at the annual meeting of the National Council of Measurement in Education, Vancouver, BC, Canada.
- Nichols, P. D. & Depascale, C. (October, 2011). *Defining systems for learning*. Paper presented at the 2011 Maryland Assessment Research Conference on Informing the Practice of Teaching Using Formative and Interim Assessment: A Systems Approach, University of Maryland College Park, MD.
- Nichols, P. D. (June, 2011). *The role of audience in evaluating validity arguments*. Paper presented at the annual meeting of the National Conference on Student Assessment, Orlando, FL.
- Nichols, P. D., Tong, Y., Miles, J., Kreiman, C., & Hall, E. (April, 2011). *Applications of classical true score theory to standard setting studies*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Nichols, P. D. (April, 2011). *Measuring college and career readiness: The role of audience in validity theory*. Paper presented at the annual meeting of the National Council of Measurement in Education, New Orleans, LA.
- Fulkerson, D., Nichols, P. D., & Snow, E. B. (April, 2011). *Expanding the model of item writing expertise: Cognitive processes and requisite knowledge structure*. Paper to be presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Snow, E. B., Fulkerson, D., Nichols, P. D., & Feng, M. (April, 2011). *Design patterns to support storyboards and scenario-based, innovative item types*. Paper to be presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Pamela Paek, Ph.D.

EDUCATION

Ph.D., Education University of California, Berkeley, May 2002

M.A., Education, University of California, Berkeley, May 1998

Secondary Teaching Certificate in Mathematics & English, University of Texas at Austin, May 1996

B.A., Mathematics and Literature/Writing, University of California, San Diego, June 1993

PROFESSIONAL EXPERIENCE

ACT, Inc.

Principal Research Scientist, October 2016-present. Lead research on personalized learning, adaptive learning, and formative assessment by developing systems views of learning. An example is reconceptualizing how key players and interactions impact student learning, through a simulation that shows how a systems-view highlights the leverage/weak points from policy to practice. Lead design efforts through developing theories of actions and validity arguments and serve as a subject matter expert in secondary mathematics, learning, formative assessment. Lead work for ACT to compete in the K-12 marketplace through development of performance level descriptors, standard settings, and responses to federal peer review.

Independent Educational Consultant, May 2013-October 2015

Advisor to state departments of education (Georgia, North Dakota), including developing resources for teacher use, around the transition to the Common Core State Standards, using examples of new types of tasks and assessment items, through development of item banks and how to use assessments and data for informing instruction. Advisor to research institutions (ACT, Stanford Research Institute, MIND Research Institute, Council of the Great City Schools, Discovery Communications) on gathering research and proposing solutions to improve teaching and learning in K-12 mathematics and reading, through assessment development, text book adoption, and tools/resources for teacher use.

National Center for the Improvement of Educational Assessment, Inc.

Senior Associate, January 2009-May 2013. Advised states and districts foster improved teaching and learning through improved practices in educational assessment and accountability. Led meetings and trainings on implementations of new policies into practice in education, such as student learning objectives, learning progressions, student growth models, comprehensive assessment systems and use of subsequent data. Consulted with numerous states on such issues as optimal design of assessment and accountability systems, creating or documenting legally defensible approaches to accountability, gathering validation evidence for accountability programs, and designing programs to support low-performing districts and schools, especially around educator development and effectiveness.

University of Texas at Austin, Charles A. Dana Center

Research Associate, May 2006- January 2009. Led research discussions, meetings, and trainings on the findings and next steps of the project on investigating and discovering practices in urban school districts that have shown or show promise for improving student achievement in mathematics, specifically those in disenfranchised groups (e.g. minority students, economically disadvantaged, English Language Learners, students with disabilities).

Provided research and technical support function for a variety of projects as needed, including development of tools and professional development trainings, and conducted research and evaluation of district programs for improving mathematics teaching and learning.

Pearson Educational Measurement (PEM)

Lead Psychometrician, December 2004- May 2006. Provided lead for New York and Michigan psychometrics and technical functions for a variety of programs (including Tennessee, New Mexico and Texas), which comprised of conducting data review meetings and standard setting meetings, program design, development and evaluation, translating research results into new plans and resources, as well as test development, scaling, equating, generation of technical manuals and evaluation. Advise teachers and administrators use technical information to evaluate their programs, instruction, and achievement.

Educational Testing Service (ETS)

Research Scientist, November 2003- November 2004. Conducted data review meetings and standard setting meetings, developed research specifications, performed scaling analyses, conducted equating analyses and general statistical programming, as well as designed, directed, conducted special research studies for high stakes testing programs. Develop documents and trainings to help teachers and administrators use this information.

Research Manager, September 2001- November 2003. Directed and led research projects on studying the impact of teacher professional development on teacher practices and their relation to student performance via teacher interviews, surveys, observations, and use of statistical techniques linking teacher practices with student learning. Disseminate findings to stakeholders and advise on how to better support teacher development.

Clickstudy.com

Vice President of Assessment and Evaluation, September 2000- August 2001. Directed and led research and development of online test preparation items for the SAT-I, including statistical and psychometric analyses: item level and test-level statistical analyses, item bank development; director and lead of assessment and evaluation. Supervisor of 10 item-writer contractors.

Education Program for Gifted Youth, Stanford University

Statistical Analyst/Researcher, September 1996- September 2000. Led research and development of math curricula and assessments for gifted children, ages 4-13, including statistical and psychometric analyses including operational and field-test designs, review of item-level and test-level statistical analyses, calibration, item bank development, technical reporting, and quality control checks of operational scores. Supervisor of two full-time staff and one graduate student.

SELECTED CONSULTING EXPERIENCE

ACT, Inc., Educational Consultant, July 2015-October 2015.

Document effective formative assessment practices to advise potential frameworks for a formative assessment set of resources.

Council of the Great City Schools, Technical Advisor, January 2014-October 2015.

Advise and develop frameworks and rubrics to evaluate the depth of mathematical materials in textbook adoption for districts and schools.

- MIND Research Institute, Senior Research Consultant**, March 2012-October 2015.
Develop methodology and frameworks for **evaluation** activities for assessment and curriculum implementation.
- Stanford Research Institute, Senior Research Consultant**, May 2013-September 2014.
Document assessment priorities and findings to advise national assessment frameworks in mathematics and English Language Arts.
- Discovery Communications, Assessment Consultant**, June 2014- September 2014.
Design and lead alignment and standard setting training for formative assessments in mathematics and English.
- North Dakota Department of Public Instruction, Technical Advisor**, May 2013-Sept 2014.
Develop training materials for educators on assessment-related issues. Advise on technical matters related to state-level policy decisions for assessment and accountability purposes.
- EdCount, LLC, Trainer/Professional Development Consultant**, March 2007- January 2009.
Conduct standard settings, alignment studies, and run policy-related psychometric and statistical analyses for state departments of education.
- Interactive Multi-Media Exercises (IMMEX), University of California, Los Angeles Psychometric/Statistical Analyst**, June 1999- June 2010. Lead analyses of statistics and psychometrics for scientific software to advise revision. Co-author papers and presentations on research findings.
- Los Angeles Educational Program (LAEP) Evaluator**, August 2000- August 2001. Conduct interviews and surveys and write up results for evaluating the Technology Training for Pre-Service Teachers study from a PT3 grant.
- The College Board Statistical Analyst**, October 1999- May 2000. Conduct statistical analyses and interpretations for the Study of Dimensionality of Metacognitive Processes.
- SERA, Mountain View, CA Statistical Analyst**, September 1996-October 1998. Conduct statistical analyses and interpretations for the Study of Online Digital Teaching and Learning.
- Mt. Diablo Unified School District Evaluator**, August 1996- December 1996. Conduct interviews and write-ups of the Measuring Teacher Training and Effectiveness study.

SELECTED PRESENTATIONS

- Paek, P.L. & Walston, D. (2015). Supporting an In-Depth Review and Understanding of Instructional Materials. Presentation at the annual meeting of the National Council for Supervisors of Mathematics, Boston, MA.
- Paek, P.L. (2014). Development of CCSS aligned rubrics for textbook adoption. Invited Talk. Council of the Great City Schools. Washington, DC.
- Paek, P.L. (2014). Operationalizing Rigor in the CCSS-M: Establishing a Common Definition and Way to Teach and Assess Rigor. Presentation at the annual meeting of the National Council for Supervisors of Mathematics, New Orleans, LA.
- Paek, P.L., (2013). Rethinking Assessment: How can we retool it to empower our use in

- classrooms? Presentation at the annual meeting of the National Council of Supervisors of Mathematics, Denver, CO.
- Paek, P., Collins, A., Webb, D.C., & Flores, G. (2013). Improving the Way Teachers Connect Assessments with Learning in Mathematics. Paper presented at the annual meeting of the National Council on Measurement in Education, San Francisco, CA.
- Paek, P.L. (2012, April). Using Learning Progressions in Large-Scale Mathematics Assessments. Paper presented at the Assessment and Testing in Mathematics Education Topic Study Group (TSG 33) at the twelfth edition of the International Congress on Mathematical Education, Seoul, Korea.
- Paek, P.L. & Foster, D. (2012, April). Improved Mathematical Teaching and Learning Using Complex Performance Assessment Tasks. Paper presented at the research pre-session of the National Council for Teachers of Mathematics, Philadelphia, PA
- Paek, P.L., & Domaleski, C. (2011, June). Multiple Approaches for Measuring the Longitudinal Progress of Students with Disabilities. Paper presented at the annual student assessment conference of the annual student assessment conference of the Chief Council of School State Officers, Orlando, FL.
- Paek, P.L., & Domaleski, C. (2011, April). Measuring Growth for Students with Disabilities. Paper presented at the annual meeting of the National Council on Measurement in Education, New Orleans, LA.
- Paek, P.L. (2010, April). From Theory to Practice: Data Use across States, Districts, and Schools. Paper to be presented at the annual meeting of the National Council on Measurement in Education, Denver, CO.
- Paek, P.L., Braun, H., Ponte, E., Trapani, C., & Powers, D. (April 2010). AP Biology teacher characteristics and practices and their relationship to student achievement. In P.M. Sadler, G. Sonnert, R.H. Tai, & K. Klopfenstein (Eds.) *AP: A Critical Examination of the Advanced Placement Program*. Cambridge, MA: Harvard Education Press.
- Paek, P.L. (2009, June). Technological tools for improving the use of assessments and data to affect teaching and learning. Presentation at the annual student assessment conference of the Chief Council of School State Officers, Los Angeles, CA.
- Paek, P.L. (2008, March). District approaches to strengthening teacher instructional practices in diverse education systems across the U.S. Paper presented at the annual meeting of the American Educational Research Association, New York, NY.
- Paek, P.L. (2007, November). A framework for identifying best practices. Invited presentation at the National Governors Association Center for Best Practices, STEM Center Policy Academy. Denver, CO.
- Paek, P.L. (2007, November). Educational policy issues and research at the local, state, and national levels. Invited talk at the Education Policy Research Across Disciplines event at the Lyndon B. Johnson School of Public Affairs. Austin, TX.

SELECTED PUBLICATIONS

- Paek, P.L. (2014). Considering psychometric methods for mathematics education research? Reflections and lessons learned. In A. Izsák, J. Remillard, & J. Templin (Eds.)

Opportunities and Applications of Psychometric Models in Mathematics Education Research. *Journal for Research in Mathematics Education Monograph*.

- Paek, P.L. & Holme, T.A. (2013). Collaborations in Chemistry Assessment across Universities: Challenges in Transfer and Scale. In T. Holme, M. Cooper, & P. Varma-Nelson (Eds.) *Trajectories of Chemistry Education*. American Chemical Society.
- Paek, P.L. (May 2010). Factors contributing to gender differences in mathematics performance of United States high school students. In H.J. Forgasz, J.R. Becker, K. Lee, & O. Steinhorsdottir (Eds.) *International Perspectives on Gender and Mathematics Education*. Charlotte, NC: Information Age Publishing.
- Paek, P.L., Braun, H., Ponte, E., Trapani, C., & Powers, D. (April 2010). AP Biology teacher characteristics and practices and their relationship to student achievement. In P.M. Sadler, G. Sonnert, R.H. Tai, & K. Klopfenstein (Eds.) *AP: A Critical Examination of the Advanced Placement Program*. Cambridge, MA: Harvard Education Press.
- Ponte, E., Paek, P.L., Braun, H., Trapani, C., & Powers, D. (2009). Using Assessment and Feedback to Enhance Learning: Examining the Relationship between Teachers' Reported Use of Assessment and Feedback and Student Performance in AP Biology. *Journal of MultiDisciplinary Evaluation*, 6(12), 103-124.
- Paek, P.L. (2008, Spring). Practices worthy of attention: Improving secondary mathematics teaching and learning. *Journal of Mathematics Education Leadership*, 10(1), 9-14.
- Martineau, J.A., Paek, P.L., Keene, J., & Hirsch, T. (2007). Integrated, comprehensive alignment as a foundation for measuring student progress. *Educational Measurement: Issues & Practice*. 26(1), 28-35.
- Paek, P.L., Holland, P., & Suppes, P. (1999). The development and analysis of a mathematical aptitude test for gifted elementary-school students. *Science and School Mathematics Association*, 99(6): 338-347.

HONORS AND AWARDS

2012 ICME-12 Award, National Science Foundation
2008 Hechinger Course on Public Communication, American Educational Research Association
2006 Spot bonus award, Pearson Educational Measurement
2002 Vice Presidential nominee, Educational Testing Service
2000-2001 Block Fellowship, University of California, Berkeley, Graduate School of Education
1998-2001 Harold Gulliksen Psychometric Fellowship, Educational Testing Service
1997 TIMSS Training Award, National Council on Educational Statistics and Synetics
1996-1998 Graduate Fellowship, University of California, Berkeley, Graduate Division

PROFESSIONAL AFFILIATIONS/ACTIVITIES

American Educational Research Association (AERA)
National Council on Measurement in Education
National Council of Supervisors of Mathematics
National Council of Teachers of Mathematics

JAMES WILLIAM PELLEGRINO

Present Position

Liberal Arts and Sciences Distinguished
Professor of Cognitive Psychology and
Distinguished Professor of Education
Co-Director, Learning Sciences Research
Institute (LSRI)
University of Illinois at Chicago

Office Address

Learning Sciences Research Institute
M/C 057
1240 West Harrison Street
Chicago, IL 60607

Education

Colgate University
1965-1969 Bachelor of Arts
Major: Psychology

University of Colorado
1969-1970 Master of Arts
Experimental, Quantitative Psychology

University of Colorado
1971-1973 Doctor of Philosophy
Experimental, Quantitative Psychology

Contact Information

312-413-2320 (office voice)
312-996-2448 (center voice)
312-413-7441 (center fax)
312-339-4095 (cell)
pellegjw@uic.edu

Awards & Recognition

National Academy of Sciences – lifetime National Associate

National Academy of Education – elected lifetime member (NAEd Vice President 2013-2020)

American Academy of Arts and Sciences – elected lifetime member

Fellow of American Educational Research Association

2013 AERA Robert L. Linn Distinguished Contributions Award (AERA Division D)

Distinguished University Scholar (2014 – 2017) – University of Illinois

2015 Educational Research Award from Council of Scientific Society Presidents

2016 Educational Testing Service Samuel Messick Memorial Lecture Award

2016 Jason Millman Award from Consortium for Research on Educational Assessment and Teaching Effectiveness (CREATE)

Professional Associations and Service

Psychonomic Society, Sigma Xi, Midwestern Psychological Association, Rocky Mountain Psychological Association, Society for Research in Child Development, American Educational Research Association, American Association for the Advancement of Science, New York Academy of Science, Cognitive Science Society, Society for Multivariate Experimental Psychology, Computers in Psychology, Society for Mathematical Psychology, European Association for Research on Learning and Instruction (EARLI), International Society for the Learning Sciences.

National Academy of Sciences and National Research Council

American Educational Research Association

AACTE Research and Information Committee; AACTE Government Relations Committee; NCATE Technology Task Force;

NSF, NIMH, OERI Proposal Reviewer; Canada Research Council Proposal Reviewer, Australian Research Council Proposal Reviewer.

Spencer Foundation: Lyle Spencer Award Review Committee (2014-2016)

Institute for Educational Sciences: Cognitive Processes Grant Review Panel (2006-2008)

Educational Testing Service

U.S. Department of Education: National Educational Technology Plan (Technical Working Group Member, 2009-10)

Technical Advisory Committees:

- *Race to the Top* Assessment Consortia: SBAC, PARCC, DLM, NCSC
- State Departments of Education: Kansas, Wyoming, New Hampshire, Illinois, New York, Texas; New England Consortium (NECAP)
- ETS CBAL Assessment Project
- National Center on Education and the Economy: Excellence for All Initiative (co-Chair)
- U.S. Department of Education Technical Review Panel for the *Race to the Top* Assessment Program

Professional Experience

1989-01	Frank W. Mayborn Professor of Cognitive Studies, Peabody College of Education and Human Development, Vanderbilt University
1989-91	Co-Director, Learning Technology Center, Vanderbilt University
1992-98	Dean, Peabody College of Education and Human Development, Vanderbilt University
1999	Visiting Professor and Visiting Scholar, Stanford University School of Education (April - December)
2001-	Liberal Arts & Sciences Distinguished Professor of Cognitive Psychology and Distinguished Professor of Education, University of Illinois at Chicago; Co-Director, Learning Sciences Research Institute, UIC

Grant Support (selected)

2009–2014	“Integrating Cognition and Measurement with Conceptual Knowledge: Establishing the Validity and Diagnostic Capacity of Concept Inventories,” National Science Foundation, Co-Principal Investigator with Lou DiBello.
2009–2012	“The Advanced Placement Course Redesign Effort: A Time-Critical Analysis of Assessment Development Processes and Outcomes,” National Science Foundation, Principal Investigator.
2009–2014	“ciHUB a Virtual Community to Support Research, Development, and Dissemination of Concept Inventories,” National Science Foundation, Co-Principal Investigator with Lou DiBello.
2010-2016	“Reading for Understanding Across Grades 6 through 12: Evidence-based Argumentation for Disciplinary Learning.” Institute of Education Sciences, USDOE, Co-PI with Susan Goldman, Kim Lawless, Cyndy Shanahan, Jenny Wiley, and Taffy Raphael.
2010-2016	“National Center for Cognition and Mathematics Instruction,” Institute of Education Sciences, USDOE, Principal Investigator with Susan Goldman.
2010-2015	“Establishing the Validity and Diagnostic Capacity of Facet-Based Science Assessments.” Institute of Education Sciences, USDOE, Co-PI with Lou DiBello, Susan Goldman, and William Stout.

2010-2013	"Climate Literacy Zoo Education Network." National Science Foundation, Co-Principal Investigator with Susan Goldman Tom Moher, Leilah Lyons, Steve Forman, and Tom Theis.
2013-2017	"Collaborative Research: Designing Assessments in Physical Science Across Three Dimensions." National Science Foundation, Principal Investigator with Louis DiBello.
2013-2017	"Improving Formative Assessment Practices: Using Learning Trajectories to Develop Resources that Support Teacher Instructional Practice and Student Learning in CMP2." National Science Foundation, Co-Principal Investigator with Alison Castro Superfine, Mara Martinez & Susan Goldman.
2014-2018	"Assessing the Efficacy of Intensified Algebra—A Technology Enhanced Model of Double-dose Algebra I for Underprepared Ninth Graders." National Science Foundation, Principal Investigator with co-PIs Susan Goldman and James Lynn
2015-2017	"Designing Next Generation Assessments to Support the Teaching and Learning of Life Science." Gordon and Betty Moore Foundation, Principal Investigator with co-PI Louis DiBello
2016-2019	"Assessment Literacy for the Next Generation Science Standards: Developing Teachers' Knowledge and Practices." National Science Foundation, Co-Principal Investigator with Donald Wink and Susan Goldman.

Publications (selected)

2014	<i>Developing Assessments for the Next Generation Science Standards</i> , with M. Wilson, J. Koenig, & A. Beatty	Washington, DC: National Academies Press.	National Academy of Sciences Report
2014	The science and design of assessment in engineering education, with L. DiBello & S. Brophy	In A. Johri & B. Olds (Eds.). <i>Cambridge Handbook of Engineering Education Research</i> (pp. 571-598). Cambridge, England: Cambridge University Press.	Book Chapter
2014	A learning sciences perspective on the design and use of assessments in education	In K. Sawyer (Ed.), <i>Cambridge Handbook of Research in the Learning Sciences</i> (pp. 233-252), Cambridge, England: Cambridge University Press	Book Chapter
2014	Beyond rhetoric: Considerations of deeper learning and 21 st century skills	In J. Bellanca (Ed.), <i>21st Century Skills: The Deeper Learning Connection</i> , New York: Solution Tree Press.	Book Chapter
2014	Assessment in the service of teaching and learning: Changes in practice enabled by recommended changes in policy	<i>Teachers College Record</i> , 116(11), 1-10.	Journal Article
2014	Learning from the reform mistakes of the past	<i>Education Week</i> , April 10, 2014	Commentary
2014	Bringing formative assessment to schools and making it count, with E. Gordon, M. McGill, D. Sands, K. Kalinich, and M. Chatteriji	<i>Quality Assurance in Education</i> , 22(4), 338-352.	Journal Article
2014	Assessment as a positive influence on 21 st century teaching and learning: A systems approach to progress	<i>Psicología Educativa</i> 20, 1-13.	Journal Article

2015	Historical thinking: In search of conceptual and practical guidance for the design and use of assessments of student competence, with J. Radinsky & S. Goldman	In K. Ercikan and P. Seixas (Eds.), <i>Assessment of Historical Thinking</i> , New York: Routledge.	Book Chapter
2015	An analytic framework for evaluating the validity of concept inventory claims, with N. Jorion, B. Gane, L. Schroeder, K. James, & L. DiBello	<i>Journal of Engineering Education</i> , 104(4), 454-496.	Journal Article
2015	Making good use of new assessments: Smarter Balanced Consortium: Technical Interpreting and using scores from the Smarter Balanced Assessment Consortium, with L. Darling-Hammond & E. Haertel	Technical Resource Paper	Technical Report
2015	Developing and validating a concept inventory, with N. Jorion, B. Gane, & L. V. DiBello	<i>Proceedings of the 2015 American Society for Engineering Education Annual Conference and Exposition</i> (electronic). American Society for Engineering Education.	Conference Proceedings
2015	Assessment of complex cognition: Commentary on the design and validation of assessments, with M. Wilson	<i>Theory Into Practice</i> , 54(3), 263-273.	Journal Article
2015	Research on learning and instruction: Implications for curriculum, instruction, and assessment, with S. Goldman	<i>Policy Insights from the Behavioral and Brain Sciences</i> , Vol. 2(1) 33–41.	Journal Article
2015	Rethinking and redesigning educational assessments.	In M. Feuer, A. Berman, & R. Atkinson (Eds.), <i>Past as prologue: The National Academy of Education at 50</i> (pp. 255-263), Washington, DC: National Academy of Education.	Book Chapter
2016	The contribution of student response processes to validity analyses for instructionally supportive assessments, with L. DiBello, B. Gane, & S. Goldman	In K. Ercikan & J. W. Pellegrino (Eds.), <i>Validation of Score Meaning Using Examinee Response Processes in the Next Generation of Assessments</i> , New York: Routledge, in press.	Book Chapter
2016	<i>Validation of Score Meaning Using Examinee Response Processes in the Next Generation of Assessments</i> , with K. Ercikan (Eds).	New York: Routledge, in press.	Edited Volume
2016	Introduction to the Validation of Score Meaning Using Examinee Response Processes in the Next Generation of Assessments, with K. Ercikan	In K. Ercikan & J. W. Pellegrino (Eds.), <i>Validation of Score Meaning Using Examinee Response Processes in the Next Generation of Assessments</i> . New York: Routledge, in press.	Book Chapter
2016	From research to practice: Redesigning science courses to advance science literacy and support learning with understanding.	In D. Prinz & K. Schwippert (Eds.), <i>Der Forschung – Der Lehre – Der Bildung. Aktuelle Entwicklungen der Empirischen Bildungsforschung</i> (pp. 25-41), Munster, Germany: Waxman.	Book Chapter

2016	Making sense of new science assessments.	<i>The State Education Standard</i> , 15(3), 34-39. (Journal of the National Association of State Boards of Education)	Journal Article
2016	Integrating the analysis of mental operations into multilevel models to validate an assessment of higher education students' competency in business and economics, with S. Bruckner.	<i>Journal of Educational Measurement</i> , 53(3), 1–19.	Journal Article
2016	A framework for conceptualizing and evaluating the validity of instructionally relevant assessments, with L. DiBello and S. Goldman	<i>Educational Psychologist</i> , 51(1), 59-81.	Journal Article
2016	Validity arguments and evidence – Blending cognitive, instructional, and measurement models and methods.	<i>Educational Psychologist</i> , 51(1), 57-58.	Journal Article
2016	Constructing assessment tasks that blend disciplinary core ideas, crosscutting concepts, and science practices for classroom formative applications, with C. Harris, J. Krajcik, & K. McElhaneey.	Center for Technology and Learning. Menlo Park, CA: SRI International. Available at: https://www.sri.com/work/publications/constructing-assessment-tasks	Technical Report
2016	Teaching, learning and assessing 21 st century skills.	In S. Guerriero (Ed.). <i>Teachers as learning specialists – Implications for teachers' pedagogical knowledge and professionalism</i> . Paris, France: OECD.	Book Chapter
2016	21 st Century science assessment: The future is now.	Center for Technology and Learning. Menlo Park, CA: SRI International. Available at: https://www.sri.com/work/publications/21st-century-science-assessment-future-now	Commissioned Report for NSF
2016	Measuring multiple source comprehension with a rating task: A signal detection theory approach, with M. Yukhymenko-Lescroart, K. Lawless, S. Goldman, and C. Shanahan	Submitted for publication, under review.	Journal Article
2016	Multidisciplinary development of assessments for educational research: A measurement perspective, with L. V. DiBello	In A. Izsak, Remillard, & J. Templin (Eds). <i>Psychometrics and assessment in mathematics education: Opportunities, challenges, and interdisciplinary collaborations</i> (pp. 183-195). <i>Journal of Research in Measurement and Evaluation Monograph, No. 15</i> . Reston, VA: National Council of Teachers of Mathematics.	Book Chapter
2016	Contributions of response process analysis to the validation of an assessment of higher education students' competence in business and economics, with S. Bruckner	In B. Zumbo & A. Hubley (Eds.). <i>Understanding and investigating response processes in validation research</i> . Springer, in press.	Book Chapter

Dr. David K. Pugalee
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Education

Lee University	Cleveland, TN	Psychology/Teacher Ed.	B.S., May 1982
University of Southern MS	Hattiesburg, MS	Curriculum & Instruction	M.Ed., August, 1990
NC Central University	Durham, NC	Mathematics	M.S., May 1992
University of NC	Chapel Hill, NC	Mathematics Ed.	Ph.D., May 1995

Current Academic Appointment

Professor, University of North Carolina at Charlotte (2002-Present) & Director of the Center for Science, Technology, Engineering, and Mathematics Education; Assistant Professor, University of North Carolina at Charlotte (1997-2002); Research Associate, Center for Mathematics, Science & Technology Education, (2006-2009); Program Coordinator, Ph. D. in Curriculum and Instruction (2003-2005); Interim Director – Center for Mathematics, Science and Technology Education, University of North Carolina Charlotte (2005-2006).

Prior Professional Experience

1995-1997 Assistant Professor Dept. of Teacher Education/Middle-Secondary, Saginaw Valley State University, University Center, MI 48710

1987-1990 Instructor (part time), Vance-Granville Community College, Henderson, NC (Mathematics)

1985-1995 Mathematics Teacher, Granville County Schools, Oxford, NC

1984-1985 Academic Dean and Teacher, Meadowood School, Richmond, VA (Mathematics/Science)

1983-1984 Mathematics and Sciences Dept. Chair and Teacher, Warwick Schools, Richmond, VA

1982-1983 Classroom Teacher, Mt. View School, Oak Hill, WV; Grades 3 & 4 self-contained class

Curriculum Development

Pugalee, D.K. North Carolina Elementary Mathematics Specialist Project. Design and implementation of a graduate program for elementary teachers to be offered across the UNC system (2009-2011).

Pugalee, D.K. & Terry, D. 2+2 Course Development, University of North Carolina General Administration. Online course development for three courses: Geometry, Measurement, and Geometry/Measurement. (2006-2008).

Pugalee, D.K., Preston, R., & Shelton, P. North Carolina Middle Mathematics Project (Sid Rachlin, PI – NSF project). Reasoning with Number and Algebra [Course development and delivery of graduate level courses - including distance education components].

Pugalee, D. K., Royster, D. R., & Harbaugh, A. Summer Workshop in Mathematics. Mathematics and Science Partnership grant activities with Charlotte-Mecklenburg Schools. Designed and delivered courses in Algebra & Number and Proportional Reasoning, including online and in-class modules for courses awarding graduate credit.

North Carolina Infrastructure for Science Education. Development of professional development program for state-wide emphasis on use of student notebooks in science with connections to literacy development and mathematics. (2003- Present).

Pugalee, D.K. (Chair), Briggs, A., Casterlow, G., Dixon, D., Hernandez, M., & McCoy, L. (1999). NCTeach: Module 4 – Mathematics. (Middle and secondary mathematics curriculum for the state-wide NCTeach program). Chair, Revision Committee for Editions 2 and 3, 2000-2002.

Course Development

EDCI 8280: Culture, Language and Mathematics

EDCI 8188: Issues and Perspectives in Urban Education

EDCI 8699: Dissertation Proposal Seminar

MAED 5040: Topics in Mathematics Education (courses in algebra and geometry for middle grades mathematics program)

MDSK 6352: Advanced Methods in Mathematics, 6-12 (new course)

MDSK 3151: Instructional Design and the Use of Technology with Middle & Secondary Learners (substantive revision)

CURR 6162: Planning for K-12 Instruction (substantive revision)

Advising

Ph.D. students in Curriculum and Instruction; Ph.D. level student research; Chair, Dissertation Committees: Edith McElroy, Angelique Seifert, Horace Andrews, Christian Northrup, Norma Royster, Henry Neal, Amber Harris, Jennifer Collins, Ralph Pillsbury, Janet Jenkins, Amelie Schinck, Patricia Linton, LaTasha Jones, Patricia Hillard

Undergraduate and graduate program advising in middle and secondary education, particularly for students with concentrations in mathematics

Served on or chaired committees for comprehensive examinations (doctoral) and master's projects or theses for students in Middle Grades, Secondary, and K-12 Education; Reading and Elementary Education; Counseling, Special Education, and Child Development; and Educational Research, Administration, and Technology

Publications (selected)

Pugalee, D. K. (2015). *Effective Content Reading Strategies to Develop Mathematical and Scientific Literacy: Supporting the Common Core State Standards and the Next Generation Science Standards*. Rowman & Littlefield.

Ronau, R. N., Rakes, C. R., Bush, S. B., Driskell, S. O., Niess, M. L., Pugalee, D. (2014). A survey of mathematics education technology dissertation scope and quality: 1968-2009. *American Educational Research Journal*, first published on April 25, 2014 doi:10.3102/000283121453181.

Pugalee, D. (2012). NING: Extending Professional Development through Online Communities. In T. Bastiaens & G. Marks (Eds.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2012* (pp. 1246-1250). Chesapeake, VA: AACE.

Niess, M.L. & Pugalee, D.K. (2011, August). Assessing K-8 Teachers' Knowledge for Teaching with Technology. *Proceedings of the International Symposium on Elementary Mathematics Teaching*, Charles University, Prague, Czech Republic.

- Chelst, K., Edwards, T., Keene, K., Norwood, K., Pugalee, D., Young, R. (2010). *Making Decisions Using Advanced Mathematics*. Raleigh, North Carolina State University.
- Niess, M. L., Ronau, R. N., Driskell, S. O, Kosheleva, O., Pugalee, D., Weinhold, M. W. (2009). Technological Pedagogical Content Knowledge (TPCK): Preparation of Mathematics Teachers for 21st Century Teaching and Learning. In F. Arbaugh & P. M. Taylor (Eds.), *Inquiry into Mathematics Teacher Education*. Association of Mathematics Teacher Educators (AMTE) Monograph Series, Volume 5.
- Pugalee, D. K., Hartman, K., & Forrester, J. (2008). Assessing middle grades students' quantitative literacy. *Investigations in Mathematics Learning*, 1(2), 35-51.
- Douville, P., Pugalee, D.K., Wallace, J. S. (December 2003). Examining instructional practices of elementary science teachers for mathematics and literacy integration. *School Science and Mathematics*, 103(8), 388-396.
- AMTE Tech. Comm. (2006). Technology position statement. In G. Knezek, R. Christensen, L. Bell, & G. Bull, Identifying key research issues. *Learning and Leading with Technology*, 2006 (May), 18-23.
- Pugalee, D. K. (2004). A comparison of verbal and written descriptions of students' problem-solving processes. *Educational Studies in Mathematics*, 55, 27-47.

Sally C. Sanders

SallyCSanders@gmail.com

1997 Copper Beech Court, Tallahassee, Florida 32308

850.766.1403

QUALIFICATIONS

- Experience in large-scale test development, administration, scoring, and reporting
- State-level science curriculum leadership
- Eighteen years of secondary science and mathematics teaching experience in Florida public schools
- M.S. degree in Science Education
- Experience in creating and delivering professional development activities for educators
- Project management and grants management experience
- National education leadership experience with Council of Chief State School Officer (CCSSO) projects
- Expertise in leading assessment data analysis workshops for educators
- Extensive knowledge of the Next Generation Science Standards and the Common Core State Standards
- Excellent oral and written communication skills
- Proficiency in Microsoft operating systems and Microsoft Office Suite

EXPERIENCE

June 2015 to Present – Science Education Specialist

Pearson Education

- Provide Professional Development and Program Activation Services to school districts in support of K-12 science instructional materials, including digital platforms

August 2015 to October 2015 – Physics Item Writer

APASS

- Contributed original physics assessment items for ACT Practice Test

April 2014 to July 2015 – Project Manager, Florida Item Bank and Test Platform

Florida Department of Education, Office of Race to the Top Assessments, Tallahassee, Florida

- Developed and presented assessment training workshops for Florida school district administrators and educators
- Provided support and technical assistance for district development of high-quality, standards-based assessments
- Provided oversight for successful completion of project deliverables, including item bank and support materials
- Provided leadership of assessment item review committees
- Managed state contracts with assessment vendors
- Supervised staff of Content Specialists

March 2011 to April 2014 – Science Assessment Specialist

Florida Department of Education, Office of Race to the Top Assessments, Tallahassee, Florida

- Managed the development of 10,000+ science assessment items for state item bank
- Facilitated Request for Proposal process and awarding of grants totaling \$21 million to Florida school districts in support of district-developed assessments
- Provided quality control measures for project deliverables, including item specifications, item development plans, assessment items and passages, item review process, and tutorials
- Provided training and support to Florida school districts for the implementation of the Item Bank and Test Platform
- Conducted research and wrote reports for Florida school district participation in international science assessments

January 2010 to March 2011 – Supervisor of Test Development

Florida Department of Education, Bureau of Postsecondary Assessment, Tallahassee, Florida

- Supervised assessment item development and administration for the Florida Teacher Certification Exam Program
- Managed the development of assessment items for 43 subject area exams, the General Knowledge Exam, and the Florida Educational Leadership Exam
- Served as content and assessment expert reviewer for the Postsecondary Education Readiness Test
- Prepared policy-related materials for submission to State Board of Education
- Delivered item writing and item review training to educators and subject matter experts
- Managed educator committees for assessment item development
- Supervised staff of test development specialists and test administration specialists
- Received the Davis Productivity Award of Distinction

January 2009 to December 2009 – Science Curriculum Specialist

Florida Department of Education, Bureau of Curriculum and Instruction, Tallahassee, Florida

- Provided statewide leadership, coordination, and technical assistance in support of the Florida Next Generation Sunshine State Standards for science
- Provided oversight for review and revision of state science standards, course descriptions, and adoption of instructional materials
- Served as State Coordinator for Presidential Awards for Excellence in Mathematics and Science Teaching
- Provided leadership for alignment of Academics with Career and Technical Education
- Conducted legislative bill analyses related to educational policy
- Served on State Selection Committee for Outstanding Biology Teacher Award
- Created and presented workshops and conference sessions for science educators

June 2006 to December 2008 – Science Curriculum and Assessment Specialist

Wyoming Department of Education, Division of Standards and Accountability, Cheyenne, Wyoming

- Provided statewide leadership, coordination, and technical assistance in support of the Wyoming State Science Standards
- Managed the initial development and implementation of the Wyoming state science accountability tests
- Facilitated item review and data review sessions for the state science test
- Prepared and presented science policy materials for the Joint Education Committee of the Wyoming State Legislature
- Served as State Coordinator for the Wyoming ACT Testing Program
- Served as State Project Lead for the national Secondary School Redesign Project
- Served as State Representative on national committees for the Council of Chief State School Officers, including the Science Assessment Committee and the Formative Assessment Committee
- Conducted Test Administration training for Wyoming school districts
- Served as State Coordinator for National Youth Science Camp Award
- Served on selection committee for Wyoming Educational Sustainability Award
- Served on Wyoming Natural Resources Advisory Board
- Served on Wyoming Educational Facilities Board
- Served on Advisory Board for University of Wyoming Mathematics and Science Program
- Served on State Selection Committee for Presidential Awards for Excellence in Mathematics and Science Teaching
- Completed State Leadership Training Program
- Created and presented workshops and conference sessions for science educators

June 2005 to June 2006 – Science Curriculum Specialist

Florida Department of Education, Bureau of Curriculum and Instruction, Tallahassee, Florida

- Provided statewide leadership, coordination, and technical assistance in support of the Florida Next Generation Sunshine State Standards for science
- Provided oversight for review and revision of state science standards, course descriptions, and adoption of instructional materials
- Served as State Coordinator for Presidential Awards for Excellence in Mathematics and Science Teaching
- Served on Sunshine State Scholars Board
- Conducted legislative bill analyses related to educational policy
- Served on State Selection Committee for Outstanding Biology Teacher Award
- Created and presented workshops and conference sessions for science educators

August 1993 to June 2005 – Science and Mathematics Teacher

Lincoln High School, Leon County Schools, Tallahassee, Florida

- Taught Chemistry, Physics, Biology, Environmental Science, and Algebra 1
- Served on Leon County Schools Committee for Implementing Technology
- Served as Supervising Teacher for five teaching interns
- Served as mentor teacher to beginning teachers
- Served as club sponsor for Environmental Club and Key Club

August 1990 to June 1993 – Science Teacher

Shanks High School, Gadsden County Schools, Quincy, Florida

- Taught Chemistry, Physics Honors, and Advanced Placement Physics
- Served on Gadsden County Schools Committee for Blueprint 2000
- Implemented pilot curriculum for Principles of Technology
- Served as Senior Class Sponsor

January 1987 to June 1990 – Science and Mathematics Teacher

Leon High School and Rickards High School, Leon County Schools, Tallahassee, Florida

- Taught Chemistry 1, Chemistry 1 Honors, Advanced Placement Chemistry, Earth/Space Science, and Fundamental Mathematics
- Served as Teach Coach for American Chemical Society Chemathon competition
- Served on Leon County Schools Curriculum Alignment Committee

January 1980 to January 1987 – Laboratory Technologist

Florida Department of Agriculture, Division of Chemistry, Tallahassee, Florida

- Conducted laboratory analyses of agricultural seed samples

EDUCATION

August 2013 – Master of Science in Science Education

Montana State University, Bozeman, Montana

Action Research Project: *Maximizing the Functionality of the Florida Item Bank and Test Platform for Science Assessment*

December 1998 – Graduate-level coursework in Science Education

Florida State University, Tallahassee, Florida

Completed 24 graduate-level credit hours in Science Education

December 1979 – Bachelor of Science in Agriculture

University of Florida, Gainesville, Florida

Completed program in Pre-Veterinary Medicine

PROFESSIONAL CERTIFICATION

Florida Professional Educator Certificate

Biology, Chemistry, Physics, and Mathematics

Quality Assurance Review School Accreditation Certificate

School Accreditation Chair Certification

Baldrige Leadership Certificate

PROFESSIONAL ASSOCIATIONS

Council of Chief State School Officers (CCSSO) Projects

Council of State Science Supervisors

National Science Teachers Association

American Association for the Advancement of Science

Florida Association of Science Supervisors

Florida Association of Science Teachers

Florida Educational Research Association

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SCILLSS Project Budget Narrative

The state of Nebraska's Department of Education (NDE) is pleased to join edCount, LLC, ACS Ventures, LLC, SRI International, and the Pacific Institute for Research and Evaluation (PIRE) to submit a cost proposal as a part of the response to the Request for Proposals (RFP) under the Enhanced Assessment Grants Program, CFDA 84.368A.

Below, we describe the nature and amount of costs necessary to accomplish the tasks for the collaborative project *Strengthening Claims-based Interpretations and Uses of Local and Large-scale Science Assessment Scores (SCILLSS)*, designed to engage three participating states in the project work and extend resources for use by all states by establishing a framework, a set of tools, and both generalizable and tailored outcomes that contribute to the meaning and usefulness of academic achievement assessment scores, all of which are described in full in the narrative of the technical proposal. For each cost type in the budget, we have outlined the assumptions used in arriving at our estimates. The narrative associated with the full development is based on an anticipated start date of January 2017, and continuing through December 31, 2020, for a total of 48 months.

This cost proposal is responsive to the US Department of Education's (ED) RFP and reflects our team's best effort to achieve the services and deliverables for this RFP, while at the same time remaining competitive in the market. The proposal includes reasonable assumptions about certain RFP requirements. The NDE and project partners trust that the assumptions included in the technical and cost proposals help explain the merit of its proposal. While NDE does not believe that any of the assumptions included in its proposal are contrary to the RFP requirements or instructions, NDE confirms that if any such assumptions are deemed to

contradict the RFP, the terms, conditions, and requirements of the RFP shall supersede such assumptions.

Below the cost justification for each category, we provide total costs by cost type in list form for each year of the proposed project. We will gladly provide greater detail for, or clarification of, the figures presented in this cost proposal if requested by the proposal evaluation team. NDE is pleased to offer a budget of **\$3,987,394.86** for the contract.

The summary to follow reflects the project budget for the Nebraska Department of Education.

Personnel

The proposed costs for NDE personnel are inclusive of total labor costs for staff committed to the SCILLSS project as described in the staffing plan and below.

The following NDE personnel will be assigned as staff on the project.

	% FTE	2017	2018	2019	2020	Total
Grant Manager						
Base Salary: \$61,000/yr	1.0	\$61,000	\$61,700	\$63,560	\$65,470	\$251,730

Fringe Benefits

Fringe benefits are included at an established agency rate of 46%.

Travel

As part of the proposed support to the three states involved in the SCILLSS project, there are key components of the work where assessment experts from edCount, ACS Ventures, and SRI will have onsite involvement and collaboration with state partners (Nebraska state as lead, along with Montana and Wyoming).

The project team has planned for a two-day kick-off meeting at the start of the project in early 2017. This meeting will engage project leaders from all participating organizations and states and will be held in Lincoln, NE.

The project leaders will also convene for an annual project meeting in the fall of each year. We will meet for two days in the fall of each year at the location of one of our partner states, to be determined upon project award.

A team of five assessment experts representing three of the partner organizations (edCount, ACS, and SRI) will facilitate a one-day meeting in each of the three states in mid-2017. The purpose of these state-specific meetings will be to develop the tailored assessment ToAs and validity evaluation frameworks.

We have also planned for a three-day, in-person educator review meeting in the fall of 2018, which will involve up to 18 educators representing the three states and the three grade levels being addressed through the project. Key staff from the three partner organizations and state leads will also attend to assist in facilitating this three-day meeting.

Costs associated with these visits are inclusive of airfare, ground transportation, lodging, meals, and incidentals for the entire SCILLSS project team (edCount, ACS, SRI, PIRE, state leads and educators from all participating states), as well as general materials and production costs for these meetings and site visits. All travel will be coordinated by edCount and will be included in their contract.

Equipment

A one-time cost of \$25,500.00 for office equipment and rent for the NDE grant manager.

Supplies

Materials (paper, office supplies, etc.) to support generation of meeting information, designing data gathering instruments, and subsequent report reviews and dissemination. For budgeting purposes, much of this type of support will be accounted for by the contractor (edCount).

Contractual

In addition to the three participating states, SCILLSS includes a team of four organizations and small businesses. edCount will serve as the lead contractor, while ACS Ventures, SRI International, and PIRE are all subcontractors to edCount.

All subcontractors' labor costs are based on a Commercial Price List, derived from edCount's federally-approved Mission Oriented Business Integrated Services (MOBIS) labor rates and applying no loads to the three subcontracts. edCount, LLC is a federally-recognized woman-owned small business as part of the US Small Business Administration Women Owned Small Business (WOSB) Program. edCount has also been granted a National Women's Business Enterprise Certification (WBE) by the National Women's Business Enterprise Council (WBENC). ACS Ventures, LLC is federally-recognized as a small business.

Under the contractor budget category, we include the entire portion of the budget that will be committed to our contractor, edCount, LLC, as well as to their three subcontractors. In addition, the expert panelists will receive an honoraria which will be paid by edCount; each expert will be contracted for four days of project work each year and attendance at the annual meeting, all at a daily rate of \$1,500.00. The subcontractor budgets include only personnel costs as all travel and other direct costs are included in edCount's budget as described above. We anticipate awarding edCount a fixed-price contract to include their contract amount for labor as

well as the budget amount for both travel and supplies for all project partners. edCount will award fixed-price subcontracts to each of the three subcontractors. All direct costs other than personnel and fringe are included in edCount's budget. The roles and time commitments for key staff from each of the contractors are shown in the table below.

Per ED requirements for CPP3, the entire subcontract for ACS Ventures personnel in year 1, in the amount of \$166,100.00, will be devoted to this absolute priority, as the ACS team will be responsible for developing, administering, and collaborating with states to collect information in evaluation of their state and local assessment systems.

Total Project Personnel FTE for Contractual Staff

Staff	Organization	Role	Phase/Task	Annual FTE
Ellen Forte	edCount, LLC	Co-Principal Investigator	All	8%
Chad Buckendahl	ACS Ventures, LLC	Co-Principal Investigator	Phases 2, 3 and 6	7%
Elizabeth Towles	edCount, LLC	Project Director	All	16%
Erin Buchanan	edCount, LLC	Deputy Project Director and Reporting Lead	All	16%
Elizabeth Greninger	edCount, LLC	Assessment Literacy Specialist	Phases 2-5	16%
Andrew Wiley	ACS Ventures, LLC	Lead Psychometrician	Phases 4 and 5	8%
Susan Davis-Becker	ACS Ventures, LLC	Psychometrician	Phases 4 and 5	13%
Bill Herrera	edCount, LLC	Science Content and Assessment Specialist	Tasks 2-6	17%
Sally Sanders	edCount, LLC	Science Content and Assessment Specialist	Tasks 2-6	15%
Dean Genge	edCount, LLC	Science Content and Assessment Specialist	Tasks 2-6	15%
Howard Everson	SRI International	Principled Design Specialist	Phases 4 and 5	9%
Daisy Rutstein	SRI International	Principled Design Specialist	Phases 4 and 5	9%
Brent Garrett	PIRE	External Evaluator	Phase 6	17%
Matthew Courser	PIRE	External Evaluator	Phase 6	10%

Other

The Other category will provide for telecommunications between participating project partners and to cover any needed postage needed for mailing project materials. This also includes website design, hosting, and maintenance for the duration of the project and five years after the project concludes. This category also includes educator stipends, estimated in the amount of \$200.00 per educator for a total of 120 educators who will participate in the pilot. The Other expenses will be covered through the edCount contract.

Indirect Costs

Indirect charges will be charged in accordance with federal regulations. NDE's indirect cost agreement with the ED allows for an unrestricted rate of 15% to be charged. Indirects are taken on all direct NDE expenditures, the first \$25,000.00 of each contract and no indirects are taken on grants awarded to subrecipients.

Total Costs

The total costs for the project are broken out by year and category in the table below.

	Year 1 2017	Year 2 2018	Year 3 2019	Year 4 2020	Total
Personnel (NDE)	\$ 61,000.00	\$ 61,700.00	\$ 63,560.00	\$ 65,470.00	\$ 251,730.00
Fringe (NDE)	\$ 28,060.00	\$ 28,382.00	\$ 29,238.00	\$ 30,116.00	\$ 115,796.00
Travel	\$ 115,955.81	\$ 70,205.81	\$ 36,605.81	\$ 36,605.81	\$ 259,373.25
Equipment	\$ 25,500.00	\$ -	\$ -	\$ -	\$ 25,500.00
Supplies	\$ 1,250.00	\$ 1,250.00	\$ 1,250.00	\$ 1,250.00	\$ 5,000.00
Contractual	\$ 909,305.87	\$ 922,463.08	\$ 815,588.83	\$ 527,326.20	\$ 3,174,683.96
Other	\$ 19,401.94	\$ 44,401.94	\$ 14,401.94	\$ 14,401.94	\$ 92,607.75
Indirect Costs (NDE)	\$ 20,934.00	\$ 13,512.30	\$ 13,919.70	\$ 14,337.90	\$ 62,703.90
Total	\$ 1,181,407.62	\$ 1,141,915.13	\$ 974,564.28	\$ 689,507.85	\$ 3,987,394.86

SCILLSS Project Narrative References

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INDIRECT COST RATE AGREEMENT
STATE EDUCATION AGENCY

Organization

Nebraska Department of Education
301 Centennial Mall South
Lincoln, NE 68509-4987

Date: OCT 17 2014

Agreement No: 2014-064

Filing Reference: Replaces previous
Agreement No. 2011-064(A)
Dated: 7/17/2014

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>
Predetermined	07/01/2014	06/30/2017	9.6%	MTDC	Unrestricted
Predetermined	07/01/2014	06/30/2017	6.6%	MTDC	Restricted

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:

Unrestricted Unrestricted rates apply to programs that do not require a restricted rate per 34 CFR 75.563 and 34 CFR 76.563.

Restricted Restricted rates apply to programs 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. Pursuant to OMB Circular A-87-Attachment B Paragraph 8.d.(3), unused 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:

Nebraska Department of Education
301 Centennial Mall South
Lincoln, NE 68509-4987


Signature

Matthew L. Blomstedt
Name

Commissioner
Title

10/22/14
Date

For the Federal Government:

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


Signature

Frances Outland
Name

Director, Indirect Cost Group
Title

OCT 17 2014
Date

Negotiator: Mae Ewell
Telephone Number: (202) 245-8238



NEBRASKA

DEPARTMENT OF EDUCATION

www.education.ne.gov
301 Centennial Mall South
P.O. Box 94987
Lincoln, NE 68509-4987
TEL 402.471.2295
FAX 402.471.0117

Elizabeth Greninger
edCount, LLC

Dear Ms. Greninger:

The Nebraska Department of Education's current Unrestricted Indirect Cost Rate is 9.6%. That rate is in effect until June 30, 2017. We are in the process of calculating and negotiation a new rate with the U.S. Department of Education to be effective July 1, 2017. It is anticipated that the new unrestricted indirect cost rate will be less than 15%.

NDE will apply the appropriate approved rate at the time of the expenditure.

If you have any questions, please feel free to contact me.

Sincerely,

A handwritten signature in black ink that reads "Paul Haas".

Paul Haas
Director of Central Accounting
402-471-3563
Paul.Haas@nebraska.gov