U.S. Department of Education

Washington, D.C. 20202-5335

APPLICATION FOR GRANTS UNDER THE

NATIONAL PROFESSIONAL DEVELOPMENT PROGRAM

CFDA # 84.365Z

PR/Award # T365Z170203

Gramts.gov Tracking#: GRANT12392255

OMB No. , Expiration Date:

Closing Date: Apr 24, 2017

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

Application for Federal Assistance SF-424

* 1. Type of Submission:	* 2. Type of Application:	* If Revision, select appropriate letter(s):
☐ Preapplication	☒ New	
☒ Application	☐ Continuation	* Other (Specify):
☐ Changed/Corrected Application	☐ Revision	

* 3. Date Received:	4. Applicant Identifier:
04/24/2017	

5a. Federal Entity Identifier:	5b. Federal Award Identifier:

State Use Only:

6. Date Received by State:	7. State Application Identifier:

8. APPLICANT INFORMATION:

* a. Legal Name:	The University of North Carolina at Greensboro
* b. Employer/Taxpayer Identification Number (EIN/TIN):	56-6001468
* c. Organizational DUNS:	6161525670000

d. Address:

* Street1:	1111 Spring Garden Street
Street2:	Suite 2601, Room 2702 MHRA Building
* City:	Greensboro
County/Parish:	Guilford
* State:	NC: North Carolina
Province:	
* Country:	USA: UNITED STATES
* Zip / Postal Code:	27412-5013

e. Organizational Unit:

Department Name:	Division Name:
Office of Sponsored Programs	ORED

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

Prefix:		* First Name:	Valera
Middle Name:	T.		
* Last Name:	Francis		
Suffix:	Ph.D.		

Title: Director, Office of Sponsored Programs

Organizational Affiliation:
The University of North Carolina at Greensboro

* Telephone Number:	336-334-5878	Fax Number:	336-334-3140

* Email: research@uncg.edu

Application for Federal Assistance SF-424

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

H: Public/State Controlled Institution of Higher Education

Type of Applicant 2: Select Applicant Type:

Type of Applicant 3: Select Applicant Type:

* Other (specify):

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

Department of Education

11. Catalog of Federal Domestic Assistance Number:

84.365

CFDA Title:

English Language Acquisition State Grants

*** 12. Funding Opportunity Number:**

ED-GRANTS-022117-001

* Title:

Office of English Language Acquisition (OELA): National Professional Development (NPD) Program
CFDA Number 84.365Z

13. Competition Identification Number:

84-365Z2017-2

Title:

NATIONAL PROFESSIONAL DEVELOPMENT PROGRAM

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

Add Attachment | Delete Attachment | View Attachment

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

Engaging and Advancing Community-centered Teacher Development (EnACTeD)

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: NC-006 | * b. Program/Project: NC-006

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

Add Attachment | Delete Attachment | View Attachment

17. Proposed Project:

* a. Start Date: 10/01/2017 | * b. End Date: 09/30/2022

18. Estimated Funding ($):

* a. Federal	2,509,174.00
* b. Applicant	0.00
* c. State	0.00
* d. Local	0.00
* e. Other	0.00
* f. Program Income	0.00
* g. TOTAL	2,509,174.00

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

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

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

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

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

☐ Yes ☒ No

If "Yes", provide explanation and attach

Add Attachment | Delete Attachment | View Attachment

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: Valera

Middle Name: T.

* Last Name: Francis

Suffix: Ph.D.

* Title: Director, Office of Sponsored Programs

* Telephone Number: 336-334-5878 | Fax Number: 336-334-3140

* Email: vtfranc2@uncg.edu

* Signature of Authorized Representative: Valera T Francis | * Date Signed: 04/24/2017

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

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

Name of Institution/Organization

The University of North Carolina at Greensboro

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	194,523.00	176,910.00	163,165.00	173,951.00	210,602.00	919,151.00
2. Fringe Benefits	51,063.00	45,298.00	40,812.00	44,422.00	56,570.00	238,165.00
3. Travel	11,600.00	11,600.00	11,600.00	11,600.00	11,600.00	58,000.00
4. Equipment	0.00	0.00	0.00	0.00	0.00	0.00
5. Supplies	33,000.00	1,700.00	1,200.00	1,200.00	1,200.00	38,300.00
6. Contractual	10,500.00	2,500.00	1,500.00	1,500.00	1,500.00	17,500.00
7. Construction	0.00	0.00	0.00	0.00	0.00	0.00
8. Other	39,050.00	46,053.00	45,875.00	46,319.00	46,785.00	224,082.00
9. Total Direct Costs (lines 1-8)	339,736.00	284,061.00	264,152.00	278,992.00	328,257.00	1,495,198.00
10. Indirect Costs*	26,535.00	22,049.00	20,422.00	21,574.00	25,478.00	116,058.00
11. Training Stipends	63,048.00	211,061.00	264,843.00	240,438.00	118,528.00	897,918.00
12. Total Costs (lines 9-11)	429,319.00	517,171.00	549,417.00	541,004.00	472,263.00	2,509,174.00

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

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

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

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

Period Covered by the Indirect Cost Rate Agreement: From: 07/01/2014 To: 06/30/2019 (mm/dd/yyyy)

Approving Federal agency: ☐ ED ☒ Other (please specify): DHHS

The Indirect Cost Rate is 45.50 %.

(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 8.00 %.

PR/Award # T365Z170203

Name of Institution/Organization	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.	
The University of North Carolina at Greensboro		

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

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.

SIGNATURE OF AUTHORIZED CERTIFYING OFFICIAL	TITLE
Valera T Francis	Director, Office of Sponsored Programs
APPLICANT ORGANIZATION	DATE SUBMITTED
The University of North Carolina at Greensboro	04/24/2017

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

DISCLOSURE OF LOBBYING ACTIVITIES

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

Approved by OMB
4040-0013

1. * Type of Federal Action:
- [ ] a. contract
- [x] b. grant
- [ ] c. cooperative agreement
- [ ] d. loan
- [ ] e. loan guarantee
- [ ] f. loan insurance

2. * Status of Federal Action:
- [ ] a. bid/offer/application
- [x] b. initial award
- [ ] c. post-award

3. * Report Type:
- [x] a. initial filing
- [ ] b. material change

4. Name and Address of Reporting Entity:

[x] Prime [ ] SubAwardee

*Name: The University of North Carolina at Greensboro

*Street 1: 1111 Spring Garden Street Street 2: Suite 2601, Room 2702 MHRA Building

*City: Greensboro State: NC: North Carolina Zip: 27412-5013

Congressional District, if known: NC-006

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

6. * Federal Department/Agency:

U.S. Department of Education

7. * Federal Program Name/Description:

English Language Acquisition State Grants

CFDA Number, *if applicable:* 84.365

8. Federal Action Number, *if known:*

9. Award Amount, *if known:*

$

10. a. Name and Address of Lobbying Registrant:

Prefix: *First Name: Kimrey Middle Name:

*Last Name: Rhinehardt Suffix:

*Street 1: 750 First Street NE Street 2: Suite 1110

*City: Washington State: DC: District of Columbia Zip: 20002

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

Prefix: *First Name: Kimrey Middle Name:

*Last Name: Rhinehardt Suffix:

*Street 1: 750 First Street NE Street 2: Suite 1110

*City: Washington State: DC: District of Columbia Zip: 20002

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

*** Signature:** Valera T Francis

***Name:** Prefix: *First Name: Valera Middle Name: T.

*Last Name: Francis Suffix: PhD

Title: Director, Office of Sponsored Programs **Telephone No.:** 336-334-5878 **Date:** 04/24/2017

Federal Use Only:

Authorized for Local Reproduction
Standard Form - LLL (Rev. 7-97)

NOTICE TO ALL APPLICANTS

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

To Whom Does This Provision Apply?

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

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

What Does This Provision Require?

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

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

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

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

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

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

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

(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.

1236-GEPA_Statement.pdf | Add Attachment | Delete Attachment | View Attachment

General Education Provisions Act (GEPA) Statement

Organization-Level: In carrying out its educational mission, The University of North Carolina at Greensboro (UNCG) will ensure, to the fullest extent possible, equitable access to, participation in, and appropriate educational opportunities for individuals served. The University does not discriminate on the basis of age, color, religion, creed, disability, marital status, veteran status, socio-economic status, national origin, race, gender or sexual orientation in its education and research programs, or its services and activities. It provides reasonable and appropriate accommodations to meet the learning and evaluation needs of a diverse group of students, faculty, community members and other participants.

UNCG's policy on non-discriminatory conduct is overseen by two Policy Administrators, with one located in our Office of Academic Affairs and the other in our Office of Business Affairs. Educational and employment practices are consistent with Section 103 of The Code of The University of North Carolina. In addition, the University complies with North Carolina General Statutes 126-16 and 126-17, Title VII of the Civil Rights Act of 1964, as amended, the Civil Rights Restoration Act of 1988, Title IX of the Education Amendments of 1972, the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1990, the Vietnam Era Veteran's Readjustment Assistance Act of 1974, and other federal and state laws relating to discrimination in educational programs and employment. In accord with Executive Order 11246, the University has in place an Affirmative Action Plan which states the University's commitment to the concept and practice of equal employment opportunity for all persons regardless of race, color, religion, sex, sexual orientation, gender identity, national origin, political affiliation, genetic information, veteran status, disabling condition, or age.

Employment recruitment efforts will include advertising in The Chronicle of Higher Education, News and Record (local Greensboro newspaper), Carolina Peacemaker, Qué Pasa, NC Works Career Centers, Greater Diversity News, and through the North Carolina Council of Educational Opportunity Programs and Southeastern Association of Educational Opportunity Program Personnel.

Project-Level: EnACTeD Project: Project staff are committed to following all non-discriminatory policies and laws, and in particular to comply with Section 427 of GEPA, enacted as part of the Improving America's Schools Act of 1994 (Public Law (P.L.) 103-382). Project staff will seek ongoing direction from the Policy Administrators on non-discriminatory conduct and particularly regarding the implementation of any future changes in these policies.

The specific steps taken in this project to illustrate how project staff will ensure equitable access will include 1) identification of special access requirements of participants; 2) availability of Americans with Disability Act (ADA), cultural and linguistic sensitivity training for project personnel; 3) recruitment of program participants from culturally and linguistically diverse backgrounds; 4) communication with educators, students, families and community partners in the language and format accessible for participants; and 5) accessible facilities, training, curriculum and online materials based on ADA and the universal design for learning (UDL) principles.

During Year 1 of the project, a *Pre/Post Program Survey* will be designed. The pre-survey will he administrated to all participants prior to program activities, and will include a section regarding special access requirements to solicit information from participants regarding special access requirements, such as wheelchair access and interpreters. All requirements will be recorded and taken into consideration during planning activities.

Second, working with the Office of Accessibility Services and Resources at UNCG and school district partners, ADA, cultural and linguistic sensitivity training resources will be available to project personnel. UDL training materials will also be available to school coordinators, lead teachers, and community leaders participating in the design of the project components to ensure the accessibility of program materials.

Third, because one of the key goals for this project is to prepare more qualified educators to leverage the linguistic and cultural assets of English learners and their families, we plan to intentionally recruit participants from diverse backgrounds to participate in the professional development and teacher education programs.

Fourth, we will work with translators and interpreters in partnering school districts to provide translation of program materials and results to stakeholders in braille and/or via audio recordings as appropriate. In addition, we plan to collaborate with the Center for New North Carolinians (CNNC) and the Coalition of Diverse Language Communities (CDLC) at UNCG to ensure project information is shared in appropriate formats and languages.

Finally, in collaboration with the University Teaching and Learning Center at UNCG and the Teaching Resource Center in the School of Education, the project team will design curriculum materials for professional development and teacher preparation courses using the UDL principles. The use of the UDL checklist developed through the Ensuring Access through Collaboration and Technology (EnACT) project will ensure programming formats are accessible for all learners, including those from diverse linguistic and cultural backgrounds and those with learning differences. The project team will ensure that families and community partners have access to facilities and transportation services that meet ADA guidelines to ensure access to all program activities.

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 Congrass, 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	
The University of North Carolina at Greensboro	
* PRINTED NAME AND TITLE OF AUTHORIZED REPRESENTATIVE	
Prefix:	* First Name: Valera Middle Name: T.
* Last Name: Francis	Suffix: Ph.D.
* Title: Director, Office of Sponsored Programs	
* SIGNATURE: Valera T Francis	* DATE: 04/24/2017

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

1. Project Director:

Prefix:	First Name:	Middle Name:	Last Name:	Suffix:
	Ye		He	Ph.D.

Address:

Street1: PO Box 26170
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City: Greensboro
County: Guilford
State: NC: North Carolina
Zip Code: 27402-6170
Country: USA: UNITED STATES

Phone Number (give area code): 336-505-9343
Fax Number (give area code): 336-334-4120

Email Address: y_he@uncg.edu

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.

1237-Exempt_Human_Subjects.pdf | Add Attachment | Delete Attachment | View Attachment

Exempt Human Snbjects Narrative

The proposed project is designed to prepare preservice and inservice teachers to better serve English learners and their families through professional development offerings, teacher education programs at both undergraduate and graduate levels, and parent, family and community engagement activities in partnering schools. The research activities of this project will involve human subjects to 1) gather ongoing feedback for program improvement; and 2) measure outcomes and impact of program activities. Specifically, participants in this project will include preservice teachers, inservice teachers, other educators, administrators, parents, and community partners. They will be invited to complete a *Project Needs Assessment*, *Pre/Post Program Surveys, Program Satisfaction Surveys*, and be invited to participate in interview, focus group, and observation activities. In addition, we will also keep participation records in our secure database and will track participants' completion of program activities and licensure status.

These activities fall under the category of research conducted in established or commonly accepted educational settings, involving normal educational practices, such as research on regular and special education instructional strategies or research on effectiveness of the comparison among instructional techniques, curricula, or classroom management methods. We believe this proposed project will be exempt from Human Subjects regulations. An application will be submitted to the Institutional Review Board (IRB) at the University of North Carolina at Greensboro (UNCG) with required information of all project research activities. IRB approval will be obtained prior to any data collection activities.

Abstract

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

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

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

You may now Close the Form

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

* Attachment: 1235-Abstract.pdf | Add Attachment | Delete Attachment | View Attachment

1) **Name of the IHE:** The University of North Carolina at Greensboro (UNCG)
2) **Partners:** Guilford County Schools & Winston-Salem Forsyth County Schools
3) **Title:** Engaging and Advancing Community-centered Teacher Development (EnACTeD)
4) **Priorities:** Absolute Priority; Competitive Preference Priority 1 & 2; Invitational Priority 1

- August, D., Branum-Martin, L., Cardenas- Hagan, E., & Francis, D. J. (2009). The impact of an instructional intervention on the science and language learning of middle grade English language learners. Journal of Research on Educational Effectiveness, 2(4), 345-376. doi:10. 1080/19345740903217623. http://dx.doi.org/10.1080/19345740903217623
- Carlo, M. S., August, D., McLaughlin, B., Snow, C. E., Dressler, C., Lippman, D., . . . White, C. E. (2004). Closing the gap: Addressing the vocabulary needs for English language learners in bilingual and mainstream classrooms. Reading Research Quarterly, 39(2), 188-215. doi:10.1598/RRQ.39.2.3. https://dx.doi.org/10.1598/RRQ.39.2.3

5) **Brief Project Description:** This project proposes the integration of community engagement activities in professional development (PD) and teacher education programs to prepare preservice and inservice teachers with English-as-a-Second-Language (ESL) and dual language licensure.

6) **Number and type of participants projected to be served by the project**

Type of Participants	2017-18	2018-19	2019-20	2020-21	2021-22	Total
Inservice Teacher PD	--	30	30	30	30	120
Preservice Teachers	--	--	12	12	12	36
Inservice Teachers	--	15	15	15	15	60
Parents	--	300	300	300	300	1,200

7) **Project goals, objectives, and performance outcomes:**

Goal 1-develop and provide online PD for educational professionals working with ELs. ***Objective 1***-By July 2018, develop self-paced PD modules and application tasks in collaboration with teacher leaders and parent and community liaisons; ***Objective 2***-By July 2022, 120 educators in private and public schools participate in the online PD.

Goal 2-develop an ESL/DL Second Academic Concentration (SAC) for undergraduate Elementary Education preservice teachers. ***Objective 1***-By July 2018, develop new courses and establish ESL/DL SAC for undergraduate Elementary Education majors; ***Objective 2***-By July 2022, prepare 36 Elementary Education majors with ESL/DL licensure.

Goal 3-develop an ESL/DL add-on licensure program for inservice teachers. ***Objective 1***- By May of 2018, revise tbe current ESL add-on licensure program to include DL add-on licensure option; ***Objective 2***-By July 2022, prepare 60 inservice teacbers witb ESL/DL add-on licensure.

Goal 4-implement family engagement activities led by participants in PD (Goal 1), elementary SAC (Goal 2), and add-on ESL/DL licensure programs (Goal 3). ***Objective 1***-By July 2018, develop parent, family, and community engagement plan in partnering schools; ***Objective 2***-By July 2022, engage 300 parents from two districts annually in parent, family, and community engagement activities; ***Objective 3***-Engage 100% project EnACTeD participants in leading and participating in these parent, family, and community engagement activities; ***Objective 4***-80% of project EnACTeD completers report better prepared to work with ELs and their families.

GPRA Performance Measures: 80% of preservice and inservice participants complete the program (1&2); become licensed (3); rate the program as effective (4 & 6); and 80% employers of completers rate program as effective (5).

8) **Contact: Project Director's name, phone, e-mail:** Ye He, 336-505-9343, y_he@uncg.edu

Project Narrative File(s)

*** Mandatory Project Narrative File Filename:** 1234-ProposalNarrative.pdf

Add Mandatory Project Narrative File | Delete Mandatory Project Narrative File | View Mandatory Project Narrative File

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

Add Optional Project Narrative File | Delete Optional Project Narrative File | View Optional Project Narrative File

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Tables and Figures

Engaging and Advancing Community-centered Teacher Development (EnACTeD)

The University of North Carolina at Greensboro (UNCG), in partnership with Guilford County Schools (GCS) and Winston Salem/Forsyth County Schools (WSFCS), proposes the ***Engaging and Advancing Community-centered Teacher Development (EnACTeD)*** project. The EnACTeD project addresses the absolute priority of providing professional development (PD) to improve instruction for English learners (ELs), invitational priority 1 of dual language (DL) approaches, competitive preference priority 1 of moderate evidence of effectiveness, and competitive preference priority 2 of improving parent, family, and community engagement.

Absolute, Invitational and Competitive Priorities

Absolnte Priority

North Carolina has one of the fastest growing EL populations in the United States, rising from 68,381 in 2004-05 to 95,308 in 2014-15. The partnering districts for this project, GCS and WSFCS, have experienced EL enrollment increases of 45% and 90%, respectively. The majority of ELs speak Spanish (N=82,146, or 86%). However, in 2014-15, only 214 teachers (or 2%) in these two districts were licensed to work with ELs.

Through EnACTed, we propose to co-design PD and TE programs with district and community partners. The PD will prepare 120 teachers to work with ELs and their families. These inservice teachers will be prepared to take the ESL Praxis and become ESL licensed in North Carolina. In addition, 60 additional inservice teachers will complete the university-based ESL add-on licensure program and be recommended for ESL/DL licensure. Finally, 36 elementary education preservice teachers will complete university coursework and required field experiences to be recommended for ESL/DL add-on licensure.

Invitational Priority 1 – Dual Language Approaches

There are a growing number of DL programs in North Carolina designed to leverage ELs' home language and home literacy practices. Since 2005, the number of DL programs has grown from seven to 100 in the state (North Carolina Department of Public Instruction, 2015). GCS and WSFCS currently support Spanish/English DL programs in nine elementary schools and one middle school. However, there are no university teacher education programs in North Carolina offering a pathway to DL licensure for preservice or inservice teachers.

As part of EnACTeD activities, we propose to develop a Spanish/English DL add-on licensure program for inservice teachers and an ESL/DL Second Academic Concentration (SAC) for preservice elementary education majors. We will recruit Spanish/English bilingual preservice and inservice teachers for these two new TE programs to create a pathway for DL teacher preparation through EnACTed.

Competitive Priority 1 - Moderate Evidence of Effectiveness

The EnACTeD project will build upon two research intervention studies:

1. August, D., Branum-Martin, L., Cardenas- Hagan, E., & Francis, D. J. (2009). The impact of an instructional intervention on the science and language learning of middle grade English language learners. *Journal of Research on Educational Effectiveness*, 2(4), 345-376. doi:10. 1080/19345740903217623. http://dx.doi.org/10.1080/19345740903217623
2. Carlo, M. S., August, D., McLaughlin, B., Snow, C. E., Dressler, C., Lippman, D., . . . White, C. E. (2004). Closing the gap: Addressing the vocabulary needs for English language learners in bilingual and mainstream classrooms. Reading Research Quarterly, 39(2), 188-215. doi:10.1598/RRQ.39.2.3. https://dx.doi.org/10.1598/RRQ.39.2.3

Both studies focus on academic language instruction and provide strong evidence of effectiveness based on IES What Works Clearinghouse (WWC) Standards. Instructional

strategies identified in these studies including teachers' selection of a small set of targeted vocabulary from texts, attention to morphological analysis, and intentional cross-language connections will be incorporated in both the PD and TE coursework and guided field experiences. Modeling and coaching of the implementation of specific strategies contained in the WWC Educator's Practice Guide (2014) will prepare teachers to use these strategies to enhance ELs' academic language development in content, ESL, and DL classrooms.

Competitive Priority 2 - Improving Parent, Family, and Commnnity Engagement

Parent and family involvement is critical in ELs' academic success. Leveraging existing community partnerships in local school districts, we propose to expand existing family literacy programs by offering *Family ESL Classes*, *Technology Workshops*, and *Parents-and-Children-Together (PACT)* activities in collaboration with local schools and community partners. All PD participants and teacher candidates seeking ESL and DL licensure will lead and participate in selected components of these community-engaged activities as part of service learning/leadership project requirements to engage in dialogues with parents, families and community leaders, uncover ELs' funds of knowledge (González, Moll, & Amanti, 2005) and leverage community cultural wealth (Yosso, 2005). Families participating in these activities will enhance the use of technology, English proficiency, and English/home language literacy interactions with their children. The integration of community-engaged activities in PD and TE programs is included as one of the major goals for the EnACTeD project (Goal 4). Specific activities are discussed further in the Project Design section.

Through EnACTeD, we aim to have 100% of participants partake in the community-engaged activities and 80% of participants report growth in their preparedness to work with parents, families and communities.

Project Design

Project Goals, Objectives and Measurable Outcomes

The EnACTeD project has four specific goals:

- **Goal 1**-develop and provide online PD for educational professionals working with ELs;
- **Goal 2**-develop an ESL/DL Second Academic Concentration (SAC) for undergraduate Elementary Education preservice teachers;
- **Goal 3**-develop an ESL/DL add-on licensure program for inservice teachers; and
- **Goal 4**-implement family engagement activities led by participants in PD (Goal 1), elementary SAC (Goal 2), and add-on ESL/DL licensure programs (Goal 3).

This five-year project will offer PD to 120 teachers (Goal 1), prepare 36 preservice teachers (Goal 2) and 60 inservice teachers (Goal 3) to obtain ESL/DL licensure. All participants will participate in and lead community-engaged activities and be prepared to work with ELs and their families (Goal 4). It is estimated that there will be 300 parents participating in the community-engaged activities annually starting from Year 2 of the project. The project aims at having at least 80% of preservice and inservice participants complete the programs (GPRA 1 & 2); become licensed (GPRA 3) and rate the program as effective (GPRA 4 & 6); and that 80% employers of completers rate program as effective (GPRA 5).

Goal 1-Online Professional Development for Educational Professionals Working with ELs

There is an urgent need to provide quality PD that prepares teachers with adequate knowledge and skills to work with ELs and their families (Calderón, Slavin, & Sánchez, 2011; Knight & Wiseman, 2006). Key features that ensure high quality of PD programs include: content focus, coherence, duration, active learning, and collective participation (Crawford,

Schmeister, & Biggs, 2008; Desimone, 2009; Wayne et al., 2008). We consider these features and propose to involve experienced educators as leaders in the PD design and delivery.

Objectives, Outputs and Outcomes. There are two objectives for Goal 1:

Goal 1-Objective 1. By July 2018, develop self-paced PD modules and application tasks in collaboration with teacher leaders and parent and community liaisons;

Goal 1-Objective 2. By July 2022, 120 educators in private and public schools participate in the online PD.

As a result of Goal 1 activities, educators participating in the PD will be prepared to work with ELs through classroom instruction and engage with families and communities. In addition, PD participants will integrate new learning from the PD modules in their classrooms, schools, and communities by designing and implementing application tasks regarding both classroom instruction and community engagement.

Project Activities and Strategies. The content of the PD focuses on strength-based, culturally and linguistically responsive instructional practices. Specifically, the PD program contains five main components: 1) culturally and linguistically responsive pedagogy (Grant & Sleeter, 2011; Lucas & Villegas, 2012; Nieto, 2013); 2) instructional strategies for academic language and disciplinary literacy (August et al., 2009; Carlo, et al., 2004); 3) ESL and DL instructional approaches (Buysse, et al., 2010; Castro, et al., 2010; Garcia, Johnson, & Seltzer, 2016; Howard, et al., 2007); 4) parent, family and community engagement (Rideout, 2014; Ward & Franquiz, 2004); and 5) teacher collaboration (Bacharach, Heck, & Dahlberg, 2010; Cook & Friend, 1995). Each component will be addressed through self-paced PD modules and application tasks for educators to complete through interactions with K-12 students, other educators, parents, families, and community partners in their local educational settings. The PD

will be designed to engage educators throughout the school year for a total of 30 hours including 15 hours of online PD contact and 15 hours of application tasks. The online PD will be designed and delivered using the Canvas learning management system (LMS), UNCG's centrally-supported LMS.

To empower educators to lead and sustain the PD efforts, participants will be engaged in active learning and collective participation in both the design and the delivery phases of the PD. District coordinators for the EnACTeD project will select experienced administrators, teacher leaders, parent representatives, and community partners from both public and private schools to contribute to the design of the PD modules and provide ongoing feedback through serving on the design team, responding to project surveys and participating in interviews and focus group discussions. Application tasks will be designed based upon School Improvement Plans and collectively identified community needs requiring authentic application of theories in educational practices. All educators completing the PD will be awarded a certificate of completion from the university and will be invited to lead the online PD module revision and PD facilitation. At the end of the project, we will build a sustainable online learning community using the Canvas LMS, through which educators will learn more about theories, strategies, and resources for working with ELs, share success stories, and provide examples to inspire one another.

Goal 2-ESL/DL Second Academic Concentration (SAC) for Preservice Teachers in Elementary Education Program

We propose to develop an ESL/DL SAC for undergraduate Elementary Education majors. Through the coursework and guided field experiences, preservice teachers will be prepared to work with ELs in elementary ESL and DL classrooms.

Objectives, Outputs and Outcomes. There are two objectives for Goal 2:

Goal 2-Objective 1. By July 2018, develop new courses and establish ESL/DL SAC for undergraduate Elementary Education majors;

Goal 2-Objective 2. By July 2022, prepare 36 Elementary Education majors with ESL/DL licensure.

Project Activities and Strategies. All Elementary Education majors are required to complete an approved SAC. The proposed 18 credit hour ESL/DL SAC will offer elementary teacher candidates two options: 1) ESL SAC; or 2) ESL/DL SAC. Preservice teachers can complete the SAC during their junior and senior year. All coursework and field experiences take two years to complete.

All Elementary Education majors may qualify for the ESL SAC option. Teacher candidates are required to take four courses (12 credit hours): *TED 523-Legal, Historical, and Cultural Implications of English as a Second Language, TED 335-Language Foundations for Teachers, TED 506-Institutes in Education* and *TED 590-Community Literacy and Adult Learners.* Both TED 506 and 590 contain guided field experience requirements through which teacher candidates will be placed in ESL instructional settings and lead community-engaged activities in local schools. In addition, they select at least 6 credit hours of coursework from a list of foreign language courses.

Elementary Education majors with advanced foreign language proficiency may qualify for the ESL/DL SAC option. The American Council on the Teaching of Foreign Languages (ACTFL) Proficiency Guidelines (ACTFL, 2012) will be used to measure candidates' language proficiency levels. These candidates need to complete at least 6 credit hours of advanced foreign language courses in Spanish (300 levels or above; or have second major, minor or SAC in Spanish). They are also required to take TED 523 and 335. In addition, they complete a new

course *TED 5XX – Dual Language Instructional Practice* and select one course from TED 506 or 590. For their internship and student teaching, they will be placed in partnering schools with existing DL programs and will have guided field experiences in both ESL and DL classrooms. Table 1 includes the proposed ESL/DL SAC course rotation for preservice teachers. All course descriptions are included in the Appendix.

Table 1. Proposed ESL/DL SAC for Elementary Education Majors

Semester	**Course Title**	**ESL (18 credit hours)**	**ESL/DL (18 credit hours)**
Fall, Junior Year	TED 523-Legal, Historical, and Cultural Implications of ESL (3)	X	X
Spring, Junior Year	TED 335-Language Foundations for Teachers (3)	X	X
Fall & Spring Junior Year	TED 506-Institutes in Education (3) TED 590-Community Literacy and Adult Learners (3)	X (6)	X (3)
Fall, Senior Year	TED 5XX-Dual Language Instructional Practice (3)	N/A	X
Junior and Senior Years	Internship and Student Teaching	X	X
Varying	Foreign Language Courses (6)	X	X (Advanced)

Goal 3-ESL/DL Add-On Licensure Program for Inservice Teachers

The proposed Add-on ESL and DL licensure program in the EnACTeD project will prepare classroom teachers to leverage the cultural and linguistic assets of ELs and their families for academic content and language learning in all K-12 classrooms.

Objectives, Outputs and Outcomes. There are two objectives for Goal 3:

Goal 3-Objetive 1. By May of 2018, revise the current ESL add-on licensure program to include the DL add-on licensure option;

Goal 3-Objective 2. By July 2022, prepare 60 inservice teachers with ESL/DL add-on licensure.

Teachers in the ESL/DL add-on licensure program will be recruited from licensed K-12 teachers in North Carolina. The courses teachers fulfill for the add-on licensure program will also be counted toward the TESOL M.Ed. program, should teachers choose to complete the additional graduate-level courses within the five-year timeframe.

Project Activities and Strategies. The current ESL add-on licensure program will be expanded to two tracks: 1) ESL add-on licensure and 2) ESL/DL add-on licensure. Teacher candidates can complete the add-on licensure program within one year.

The ESL add-on licensure track will require 3 graduate-level courses (9 credit hours): *TED 523 Legal, Historical, and Cultural Implications of English as a Second Language*; *TED 604 Applied Linguistics*; and *TED 618 Teaching English as a Second Language with Practicum.* Upon completion of the coursework, teachers will be prepared to pass the ESL Praxis II exam and obtain K-12 ESL licensure.

The ESL/DL track will require teachers to complete five graduate-level courses (15 credit hours). Teacher candidates must demonstrate advanced foreign language proficiency in Spanish based on the ACTFL Proficiency Guidelines (ACTFL, 2012) to be considered for this program.

In addition to TED 523, TED 604, and TED 618, two additional courses will be developed and required: *TED 5XX-Dual Language Instructional Practice* and *TED 6XX-ESL/Dual Language Assessment*. In both courses, inservice teachers will have guided field experiences in DL classroom settings. Upon completion of the five courses, teachers will be prepared to pass the ESL Praxis II exam, complete the DL teaching portfolio, and pass the required Praxis exam in NC to become DL licensed. Table 2 includes the proposed course rotation for the ESL/DL add-on licensure program for inservice teachers. Course descriptions are included in the Appendix.

Table 2. Proposed ESL/DL Add-On Licensure Program for Inservice Teachers

Semester	**Course Title (each course is 3 credit hours)**	**ESL (9 credit hours)**	**ESL/DL (15 credit hours)**
Fall	TED 523 Legal, Historical, and Cultural Implications of English as a Second Language (3)	X	X
Fall	TED 5XX- DL Instructional Practice (3)	N/A	X
Summer	TED 604 Applied Linguistics (3)	X	X
Summer	TED 6XX-ESL/DL Language Assessment (3)	N/A	X
Spring	TED 618 Teaching English as a Second Language with Practicum (3)	X	X

Goal 4-Parent, Family, and Community Engagement in K-12 Schools

Through the EnACTeD project, all PD participants and teacher candidates in the TE programs will lead and participate in the community-engaged activities. We propose to expand

the existing family literacy programs by offering *Family ESL Classes*, *Technology Workshops*, and *PACT* activities in collaboration with local schools and community partners.

Objectives, Outputs and Outcomes. There are four objectives for Goal 4:

Goal 4-Objective 1. By July 2018, develop parent, family, and community engagement plan in partnering K-12 schools;

Goal 4-Objective 2. By July 2022, engage 300 parents from two districts annually in parent, family, and community engagement activities;

Goal 4-Objective 3. Engage 100% of project EnACTeD participants in leading and participating in these parent, family, and community engagement activities;

Goal 4-Objective 4. 80% of project EnACTeD completers report being better prepared to work with ELs and their families.

These community-engaged activities will lead to increased frequency and enhanced quality of family literacy activities using technology and digital literacy tools. Families' participation in family engagement activities is also expected to increase. As a result of the participation in these community-engaged activities, EnACTeD project participants will be better prepared to work effectively with parents, families and communities.

Project Activities and Strategies. The parent, family, and community engagement activities will be developed based on existing activities currently offered in the two districts. The *Family ESL Class* is designed based on the Keenan model (Darling & Hayes, 1989) and the Real-World English model (Cooper, Levin, & He, 2016). Parents develop English language proficiency through learning the K-12 curriculum, instructional activities teachers employ in classrooms, and real-world English applications (e.g., job interviews, going to the doctor, teacher-parent conferences, etc.). Through this class, parents not only improve their English

proficiency, but also build upon and develop their navigational and social capitals (Yosso, 2005) and support their children's learning at home in English and the home language. Specific home literacy strategies will be introduced to parents to teach children reading skills and for listening to children read (National Center for Families Learning [NCFL], 2013; WWC, 2014). Both partnering districts have successfully implemented this type of class with parents in school and community settings. Project EnACTeD will allow us to improve the existing curriculum and expand family and community engagement opportunities.

In addition, parents will participate in the *Technology Workshop* through school and community partnerships. With the support from the university, school districts and community partners, families will have access to computers, laptops, or mobile devices in desired community locations or through university, school, or community libraries. The *Technology Workshop* will be designed and implemented by EnACTeD participants in collaboration with lead teachers in the districts and community partners based on successful family technology initiatives such as California's *School2Home* program, New York's *Computers for Youth (CFY)* effort, and the *PowerMyLearning.org* digital learning platform. The curriculum for parent will focus on digital communication tools (e.g., email, blogs, Skype), educational Web 2.0 tools (e.g., wikis and Edmodo), digital literacy tools (e.g., ReadyRosie and Benchmark ebooks), and school information systems (e.g., the parental dashboard of the PowerSchool school information system). In addition to the face-to-face workshop option, families may choose to participate in online learning using their mobile devices to access self-paced and/or recorded workshop sessions.

Finally, parents will engage in *PACT* activities in their children's classrooms, after-school programming, weekend Heritage Language Academy, or youth STEAM (Science,

Technology, Engineering, Arts, and Math) programs. EnACTeD participants will work with schools and community leaders to design meaningful *PACT* activities to be integrated in both school-based and community-based learning activities. Through *PACT*, parents can participate in instruction, share their cultural, linguistic, and content background, and apply their expertise and what they learn from the *ESL Class* and *Technology Workshop* in their interactions with their children. *PACT* activities offer EnACTeD participants an opportunity to integrate home literacy practices into classroom instruction. At the same time, it also encourages parents to enhance home literacy interactions with their children beyond classroom settings.

During the planning year, district coordinators will seek input from teachers, parents, and local community leaders to refine these community engagement opportunities and ensure activities are meaningful for all participants. Through engaging in these projects, parents will enhance English proficiency, the use of technology, and English/home language literacy interactions with their children. EnACTeD teacher candidate participants will participate in the development and delivery of the community engagement program in collaboration with educators from the partnering school districts. In addition to providing service to support family engagement, EnACTeD participants will also complete service learning and leadership projects through which they will learn more about the needs, strengths and assets of families from the local community.

GPRA Performance Measures

GPRA performance measures 1-6 will be used to assess the effectiveness of project goals. Table 3 specifies the project goals and corresponding GPRA measures that will be used. Overall, 80% of EnACTeD participants are expected to complete the PD and TE programs (GPRA 1 &

2); become licensed (GPRA 3); and rate the program as effective (GPRA 4 & 6). Additionally, 80% of the employers of EnACTeD completers will rate the program as effective (GPRA 5).

GPRA measures 1, 2, and 3 will be addressed using the project database. During Year 1, a project database will be established to track the completers for the PD, SAC, and add-on programs, and to document participants' engagement in Goal 4 activities. In addition, participants' will be tracked for completing the licensure requirements. The number and percentage of program completers and those who become licensed as a result of program activities will be reported annually.

Table 3. Goals and GPRA Performance Measures

GPRA Measures	**1**	**2**	**3**	**4**	**5**	**6**
Goal 1 - PD for Educators		X	X	X	X	X
Goal 2 - Elementary with TESOL/DL SAC	X		X	X	X	X
Goal 3 - ESL/DL Add-On		X	X	X	X	X
Goal 4 - Family and Community Engagement						X

Baseline data will be collected using the *Project Needs Assessment. Pre/Post Program Surveys* will also be administrated to examine the effectiveness of the programs in preparing teachers to serve ELs and in increasing their knowledge and skills related to parent, family and community engagement. The *Pre/Post School Leader Survey* will be conducted with school leaders, other educators, and employers in schools for participating teachers to identify the effectiveness of teacher preparation in working with ELs and their families. Finally, the *Pre/Post*

Parent Survey will be administrated with parents participating in Goal 4 activities to seek their feedback on preservice and inservice teachers' preparedness. In addition to surveys, interviews, semi-structured focus group discussions, observations will be conducted with a representative sample of participants to further explore their application of what they learn from the program in their work with ELs and their families.

In addition to summative measures, formative feedback will be collected through *Program Satisfaction Surveys*. Ongoing feedback to project design and delivery will also be collected from project design team meetings, annual district meetings, and informal conversations with program participants, school leaders, parents, and families. The ongoing formative feedback will provide immediate input for program improvement to ensure the achievement of project goals and GPRA performance measures.

Possible Replication of Project Activities and Effectiveness of Project Approach

The PD modules and revised TE programs integrating strong theories from the WWC Educator's Practice Guide (WWC, 2014), classroom-based field experiences, and meaningful community-engaged activities have far reaching implications in North Carolina. The online PD modules and application tasks will be made available to all public and private school teachers working with ELs. Districts and schools can join the online PD community created through the EnACTeD project or replicate the PD design and delivery process in their local contexts. The TE programs will offer the first formal pathway for bilingual teacher candidates to obtain DL teaching licensure in the state. Other teacher education programs can replicate the program model to prepare more ESL and DL teachers. Finally, the integration of community engagement activities in PD and teacher education programs create a reciprocal learning opportunity where teacher educators and teacher candidates not only serve, but also learn from ELs and their

families. The curriculum and materials designed for the *ESL Family Class*, *Technology Workshop* and *PACT* activities will be shared with other educators.

The project evaluation includes both formative and summative measures based on the Logic Model (see Appendix). The formative evaluation will provide ongoing feedback for PIs to improve program effectiveness and document the strategies that enhance project effectiveness. The quasi-experimental design of the summative evaluation results will capture the impact of various project components. Project personnel will present the project process and outcomes at regional and national conferences and disseminate the project outcomes through publications. Project participants will also be encouraged to engage in teacher action research and document and disseminate their application of the research-based instructional practices with ELs.

Project Building Upon Strong Theory

The EnACTeD project is designed based on current research and strong theory. With culturally and linguistically responsive pedagogy as the overarching framework, we will design project activities based on 1) research-based instructional practices that support academic language development in content areas; and 2) strengths-based family and community engagement efforts. In both PD and TE programs, theory, instructional practices, and community-engaged activities are three integral parts that support teacher preparation (Figure 1).

Research included in the WWC Educator's Practice Guide (2014) undergirds the design of PD and TE content to highlight research-based academic language instruction for ELs. Specifically, we draw from Carlo, et al.'s (2004) intervention study on vocabulary instruction for ELs and bilingual students to engage teachers in identifying targeted vocabulary in selected texts for focused instruction. Strategies to teach words in content areas, words with multiple meanings, words with affixes, and words with cross-language potential will be modeled and practiced in

guided field experiences with ELs. Students' Spanish language background will be highlighted and leveraged in DL classrooms to promote their academic vocabulary mastery. In addition, we develop PD and TE coursework based on August et al.'s (2009) work on academic language development in content area instruction. Activities in PD and TE programs will engage teachers in discussions and applications of instructional practices such as the use of visuals, graphic organizers, modeling, guided discussion, and structured grouping. Curriculum materials and research based on Project QuEST will be used in both PD and TE coursework. Both studies and other relevant research meeting the WWC standards (e.g. Lesaux, et al., 2010; Silverman & Hines, 2009; Vaughn, et al., 2009) will be integrated into PD and TE courses.

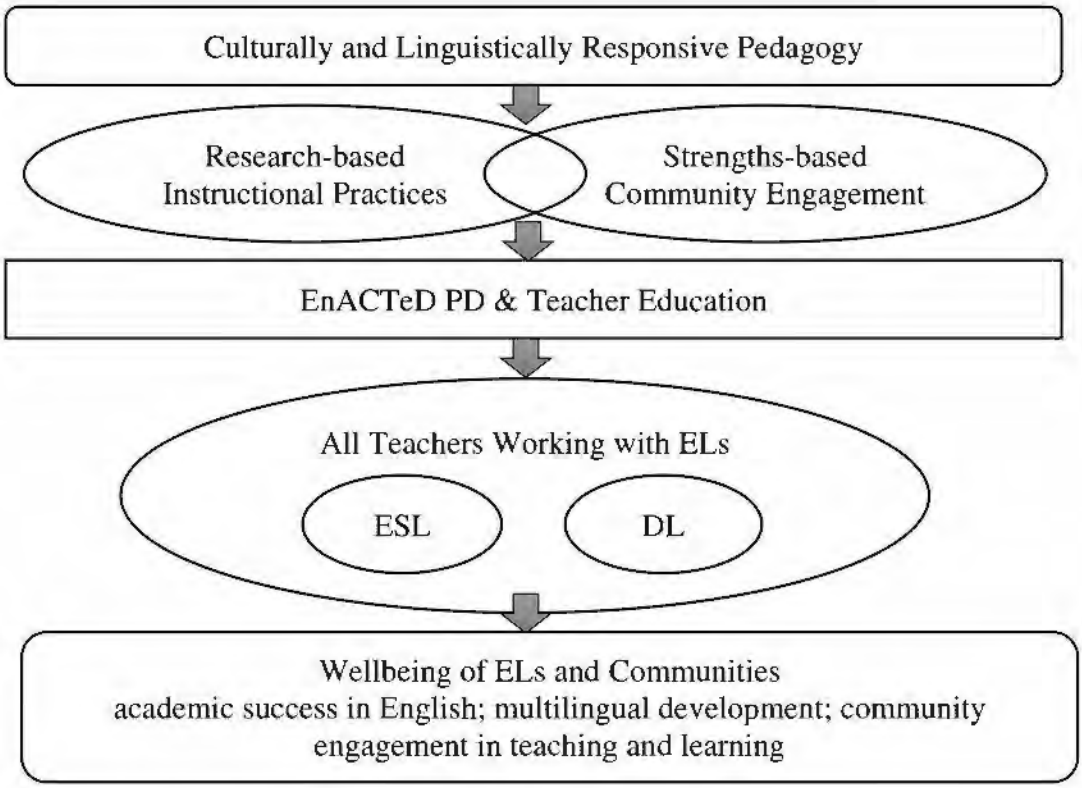

Figure 1. Project EnACTeD Conceptual Framework

In addition, we will integrate community-engaged activities in PD and TE based on features of effective community engagement in schools for ELs (Darling & Hayes, 1989;

Rideout, 2014; Ward & Franquiz, 2004). Through EnACTeD, teacher candidates engage in a two-generation approach to work with ELs and their families in community-based service learning and leadership projects. *Family ESL Classes*, *Technology Workshops*, and *PACT* activities offer authentic service and learning opportunities where teacher candidates can offer their expertise to support home literacy development and at the same time engage in meaningful interactions with families to uncover funds of knowledge (González, Moll, & Amanti, 2005) and community cultural wealth (Yosso, 2005). This community-engaged learning experience situate teacher candidates in direct communication with families and community partners. Their involvement in the communities and what they learn from the communities can result in the transfer of such practices into their classroom instruction with other ELs and their families.

Project Personnel

Employment Applications from Traditionally Underrepresented Groups

In carrying out its educational mission, UNCG will ensure to the fullest extent possible equitable access to, participation in, and appropriate educational opportunities for individuals served. The university does not discriminate on the basis of age, color, religion, creed, disability, marital status, veteran status, socio-economic status, national origin, race, gender or sexual orientation in its education and research programs, or its services and activities. It provides reasonable and appropriate accommodations to meet the learning and evaluation needs of a diverse group of students, faculty, community members and other participants. Employment recruitment efforts will include advertising in a variety of national, regional and local outlets focusing on minority audiences. Project EnACTeD staff will seek ongoing direction from the Policy Administrators on non-discriminatory conduct and particularly with regard to the

implementation of any future changes in these policies. More information regarding UNCG's non-discriminatory policies and project specific practices can be found in Appendix—GEPA.

Qualifications of PIs and Other Project Personnel

Dr. Ye He will serve as the **Lead PI.** Dr. He is Associate Professor in TESOL and has been a faculty member at UNCG since 2005. She serves as the academic advisor for ESL preservice and inservice teachers and teaches linguistics and ESL methods courses. She has led the TESOL program revision at UNCG and has extensive experience designing and delivering PD. She has served as lead-PI or co-PI on several ESL PD grants from *Student Coalition for Action in Literacy Education*, *Reynolds American Summer Fellowship Program*, *University-School Teacher Education Partnership*, *Piedmont Triad Education Consortium*, *State of North Carolina*, and a previous NPD grant, *TESOL for ALL*. She also serves as a member of the North Carolina Dual Language/Immersion Advisory Group. Dr. He will oversee the design and implementation of the project and lead the PD development and delivery (Goal 1).

The lead PI will be assisted by three **Co-PIs**. **Dr. Melody Zoch** is Assistant Professor of Literacy Education and directs the Elementary Literacy Program. Dr. Zoch received her PhD in Language and Literacy Studies from the University of Texas at Austin. She has six years of experience teaching as a bilingual Spanish-English elementary school teacher and working with bilingual teachers as a literacy coach in Texas. She has been a faculty member at UNCG since 2012 where she teaches literacy methods courses. She has experience providing PD around literacy teaching and ELs. She has served as lead-PI or co-PI on projects involving working with ELs funded by the *Junior League of Greensboro*, the *Dollar General Literacy Foundation*, and the *Coalition for Diverse Language Communities*. **Dr. Jeannette Alarcón**, is Assistant Professor and Elementary Education Program Advisor. She has been a UNCG faculty member since 2013.

She teaches methods, pedagogical and foundational courses for the Elementary Education, TESOL, and Secondary Education programs at UNCG. She serves on the Elementary Education Leadership team. She has served as a public school instructional coach and has extensive experience working with preservice teachers and leading experienced teachers in implementing integrated and culturally responsive curricula in ESL and DL settings. Dr. Zoch and Dr. Alarcón will create the ESL/DL SAC for Elementary Education majors (Goal 2). Because the SAC takes two years to complete, Drs. Zoch and Alarcón will serve as the lead advisor for alternate cohorts. Dr. Zoch will also develop and teach the new course on DL instruction. **Dr. Jamie Schissel** is Assistant Professor in TESOL. She received her PhD in Educational Linguistics from the University of Pennsylvania and joined the UNCG faculty in 2013. She advises preservice and inservice teachers and teaches linguistics and TESOL methods courses at both the undergraduate and graduate levels. She has worked in language testing and has expertise in developing and teaching language assessment courses. In partnership with colleagues at King's College, London, England and the Benito Juárez Autonomous University of Oaxaca, Mexico, she has led PD, courses, and collaborative research on language assessment with culturally and linguistically diverse communities. Dr. Schissel will lead the development of the ESL/DL add-on licensure program (Goal 3). She will design and teach the new course on ESL/DL assessment.

District Coordinators will work collaboratively with PIs to design and implement the community-engaged activities (Goal 4). Two district coordinators from each district are designated to support this project. **GCS District Coordinators** include **Mayra Hayes** and **Liliana Jordanov.** Mrs. Hayes has been the ESL Director for GCS since 2003, previously serving as a middle school principal. She supervises 124 ESL teachers and 35 Community Liaisons. She has experiences facilitating PD for ESL and content teachers, and coordinates

parent programs which focus on learning English, building literacy skills in the first language, and workshops tailored to homework help and maneuvering the school system. Liliana Jordanov is GCS World Languages and Global Education Coordinator. Originally from Argentina, Ms. Jordanov joined GCS in 2000 and has taught Spanish, ESL and ESL classes for parents. She supervises 130 world language teachers, organizing professional development and creating capacity among K-12 World Language educators and collaborates with the ESL Department to support GCS Immersion programs. **WSFCS District Coordinators** include **David Sisk** and **Leslie Baldwin.** Mr. Sisk is WSFCS Title III/LEP Program Manager**.** He has worked with the Winston-Salem ESL community since 1997 as an adult ESL teacher, an elementary ESL teacher, and since 2004 as the Director of Title III/LEP programs for WSFCS. Mr. Sisk directs the school system's EL family literacy programs and has served as an adjunct professor of language and culture at Winston-Salem State University as well as a contracted online instructor for UNCG. Leslie Baldwin is WSFCS World Languages Program Manager. Ms. Baldwin has been the World Languages coordinator for WSFCS since 2004. In addition to the middle and high school language programs, she coordinates DL programs in WSFCS. She is experienced in developing PD for language teachers addressing appropriate pedagogy, proficiency levels, and assessment. She is the President of the National Association of District Supervisors of Foreign Languages and is an adjunct professor at Wake Forest University.

Dr. Jill Chouinard will serve as the lead **Project Evaluator**. Dr. Chouinard is Assistant Professor and Senior Fellow at the Office of Assessment, Evaluation, and Research Services (OAERS). Dr. Chouinard serves as a faculty in the Department of Educational Research Methodology (ERM) at UNCG and senior fellow at OAERS, an office offering assessment, program evaluation and data analysis support for organizations in the Piedmont Triad, North

Carolina and beyond. She has extensive experience working in educational and community-based program environments, utilizing a mixed-method approach (qualitative and quantitative), and has served as lead evaluator on several major grant-funded projects. As a research methodologist, her recent publications can be found in the *American Journal of Evaluation*, *Evaluation and Program Planning*, *Evaluation,* the *Canadian Journal of Program Evaluation*, and the *Journal of Multidisciplinary Evaluation*. **Dr. Bryan Hutchins** will serve as the **Project Evaluator** focusing on the impact analysis of student outcomes. Dr. Hutchins is a research specialist at the SERVE Center who specializes in quantitative analysis. He has extensive experience working on projects that meet WWC standards and using administrative data provided by the NC Education Research Data Center (NCERDC). He currently serves as a data manager and analyst for four Investing in Innovation (i3) grant-funded projects focused on improving postsecondary education success. He has also served as PI for North Carolina's Read to Achieve Evaluation (Year 2). He has taught both undergraduate and graduate level courses in child and adolescent development and research methodology.

An **Evaluation Assistant (EA)** will be hired and supervised by Dr. Chouinard to assist with project evaluation efforts. The EA will support instrument development and administration, and maintain the project database. In addition, the EA will provide assistance throughout the sampling, data collection and data analysis stage and assist with annual report writing. Ideal candidates for this position include current doctoral students in ERM who have completed coursework in evaluation and survey design, as well as quantitative, qualitative, and mixed-methods data analysis and reporting.

Project Manager (PM) will be hired at project startup to ensure good fiscal management of project funds and to support programmatic activities consistently throughout the five years.

Due to the size and scope of project activities, the dedicated PM will be embedded in the program, available to the Co-PIs, students and partners as a single point of contact. The PM will coordinate and organize meetings, prepare program files and materials, order supplies, maintain the project website, and work with the evaluation team to maintain the project database. The PM will provide support for project budget management. The PM will also work closely with the partnering districts and schools to coordinate field experience supervision of preservice and inservice teachers. Ideally, candidates for this position will have experience working in K-12 educational settings and will be familiar with university administrative tasks.

Graduate Assistant (GA) will support co-PIs and district coordinators to design and deliver project activities. The GA will provide support in field experience placements, supervision, and the evaluation of teacher candidates' dispositions and teaching performance. The GA will also coordinate regular seminars to provide support for mentor teachers, preservice teacher participants, inservice teacher participants, and graduates from PD and the revised TE programs. The ideal GA is a doctoral student in the Teacher Education and Higher Education department with K-12 teaching experiences in ESL and DL classrooms.

Applicants from traditionally underrepresented populations based on race, color, national origin, gender, age, or disability will be encouraged to apply for the EA, PM and GA positions. More information regarding UNCG's non-discriminatory policies and project specific practices can be found in Appendix-GEPA.

Project Management Plan

Responsibilities, Timeline and Milestones

The proposed project will be carried out in five years with the first year as the planning year. The target number of participants is specified for each implementation year (Table 4).

Milestones are set for each project goal based on the specific objectives and outcomes (Table 5). Project management will be collaborative, with the project team working together on all planning and implementation activities. The Lead PI, Dr. He, will oversee all program efforts and serve as the contact for all external stakeholders, such as the NPD program officer, state and local district administrators, and community partners. She will also supervise the PM. One of the co-PIs, Dr. Schissel, will supervise the GA. Dr. Chouinard will work with Dr. Hutchins on formative and summative evaluation reports and supervise the EA. In addition to the project team, three design teams will be established during Year 1: the PD Design Team led by Dr. He; the TE Revision Team led by Drs. Schissel, Zoch, and Alarcón; and the Family Engagement Team led by District Coordinators. The three teams will meet regularly throughout the project to discuss design progress and evaluation feedback for program improvement for Goals 1-4. Baseline data will also be collected during Year 1 for project evaluation purposes. Please see specific position descriptions in the Appendix.

Table 4. Project Goals, Key Personnel and Nuunber of Completers

Year	Goal 1 (He)	Goal 2 (Zoch & Alarcón)	Goal 3 (Schissel)	Goal 4 (District Coordinators)
1*	Planning, Program Approval and Recruitment			
2	PD Cohort 1 (30)	Cohort 1 Start	Cohort 1 (15)	300 Parents
3	PD Cohort 2 (30)	Cohort 1 Complete (12) Cohort 2 Start	Cohort 2 (15)	300 Parents

Year	Goal 1 (He)	Goal 2 (Zoch & Alarcón)	Goal 3 (Schissel)	Goal 4 (District Coordinators)
4	PD Cohort 3 (30)	Cohort 2 Complete (12) Cohort 3 Start	Cohort 3 (15)	300 Parents
5	PD Cohort 4 (30)	Cohort 3 Complete (12)	Cohort 4 (15)	300 Parents
Total	**120 Inservice Teachers**	**36 Preservice teachers**	**60 Inservice Teachers**	**1,200 Parents**

** The project budget includes fall tuition payments starting in Year 1 for each cohort and goal to meet payment deadlines.*

During Years 2-5, we will carry out activities for each project goal. The recruitment for PD will be conducted year-round and completed at the beginning of each fall semester (Goal 1). PD will be carried out during the academic year and completers will receive certificates of completion by June of every year. Cohorts of Elementary Education majors will be recruited to start the ESL/DL SAC program during their junior year (Goal 2). Completers will take the required Praxis exams and apply for ESL/DL licensure by the end of their senior year. Inservice teachers will be recruited year-round. Inservice teachers can start the ESL/DL add-on licensure program every fall and will be prepared to take the required Praxis exams and apply for ESL/DL licensure by May every year (Goal 3). Community engagement activities planned will follow the same cycle as PD, with families recruited in an ongoing manner; the program will start each fall and complete by June every year (Goal 4).

To ensure the successful implementation of the program activities, the program team will have bi-monthly meetings throughout the duration of this project. An online secure archive will be created to keep all meeting minutes and project team communications. A project database will be established to track the number of participants and program evaluation data throughout the project. Every June, the project team will share project progress, the number of program completers, accomplishments and upcoming activities at district meetings with stakeholders in public schools, private schools and local communities. Stakeholder feedback regarding the effectiveness and impact of various project activities will also be gathered at these meetings. At the end of each academic year, an evaluation report will be prepared to summarize the evaluation results and offer recommendations for project improvement.

Table 5. EnACTeD Project Management Matrix

Activities (Objectives)	**Milestones**	**Years**	**Personnel**
Develop online PD (1-1)	Online PD modules and application tasks developed	1	He, District Coordinators, & GA
Recruit PD participants (1-2)	120 inservice teachers participate in PD by 2022 (approximately 30 each year)	2/3/4/5	He, District Coordinators & PM
Develop new courses and ESL/DL SAC for Elementary Education preservice teachers (2-1)	Course syllabi and program proposal developed	1	Zoeh, Alarcón, & GA

Activities (Objectives)	**Milestones**	**Years**	**Personnel**
Recruit and prepare teacher candidates for ESL and ESL/DL licensure (2-2)	36 preservice teachers receive ESL/DL licensure by 2022	2/3/4/5	Zoch, Alarcón, Chouinard, PM, & EA
Develop new courses and ESL/DL add-on for inservice teachers (3-1)	Course syllabi and program proposal developed and approved	1	Schissel & GA
Recruit and prepare teacher candidates for ESL and ESL/DL licensure (3-2)	60 inservice teachers receive ESL/DL licensure by 2022	2/3/4/5	Schissel, Chouinard, PM, & EA
Development family engagement plan based on *Family ESL Classes*, *Technology Workshops*, and *PACT* activities (4-1)	Enhanced family English proficiency, technology proficiency, and involvement in schools	1	District Coordinators, He, Schissel, Zoch, & Alarcón
Recruit and involve families and community members in family engagement activities (4-2)	300 participants from 2 districts participating in community engagement activities annually	2/3/4/5	District Coordinators, Chouinard, GA, & EA
Engage all participants in community engagement activities (4-3)	100% of candidates participate in community engagement activities	2/3/4/5	District Coordinators, Chouinard, GA, & EA

Activities (Objectives)	Milestones	Years	Personnel
Prepare project EnACTeD participants to serve ELs and their families through PD, TE, and guided experiences and reflections (4-4)	80% report being better prepared to work with ELs and families	2/3/4/5	District Coordinators, He, Schissel, Zoch, Alarcón, Chouinard, GA, & EA

Time Commitment

Key personnel will devote sufficient time throughout the academic year for activities proposed for the project. Table 6 details the time commitment of the PIs.

Table 6. PI Time Commitment

		Year 1	Year 2	Year 3	Year 4	Year 5
Lead PI: Ye He	AY	25%	25%	12.5%	12.5%	25%
	SU	67%	33%	33%	33%	67%
Co-PI: Melody Zoch	AY	12.5%	12.5%	12.5%	12.5%	12.5%
	SU	33%	25%	25%	25%	33%
Co-PI: Jeannette Alarcón	AY	10.0%	10.0%	5.0%	5.0%	10.0%
	SU	33%	25%	25%	25%	25%
Co-PI: Jamie Schissel	AY	12.5%	12.5%	12.5%	12.5%	12.5%
	SU	33%	25%	25%	25%	33%

Course releases will be budgeted for all PIs each year to allow time for project start-up and involvement to a greater degree for activities beyond their typical position responsibilities,

and will devote effort during each summer of the project. During the academic year (AY), 12.5% equals one course release for a 3-credit hour course. During the summer (SU), 25% equals .75 summer month out of three and 33% equals one summer month out of three. Dr. Alarcón's AY efforts reflect the adjustment of her supervision and co-teaching responsibilities. During the planning year (Year 1) and reporting year (Year 5), PIs will allocate additional time and efforts to the project.

The school coordinators will be actively engaged in recruiting, placing, and supervising teacher candidates and leading the school-based family and community engagement activities as part of their regular duties. There will be a full-time Project Manager on staff to provide operational support and also to support fiscal management. This will allow the PIs to focus on program and evaluation components. A GA will be assigned to assist with logistics and supervision support in the field. The budget reflects a distribution of funds that will allow programmatic and operational support necessary for this project's success, while also ensuring good stewardship of funds requested.

The project team will work together to carry out all project activities. Each team member is assigned to lead the development and the implementation of specific project goals and objectives. As the Lead PI, Dr. He will oversee project development and implementation, and manage the project budget. In addition, Dr. He will work closely with Dr. Chouinard to carry out the evaluation plan for the project and utilize ongoing evaluation feedback for project improvement. Dr. He will also work with district coordinators to monitor the implementation of all project activities and the effectiveness of teacher preparation for ELs and their families as a result of this project. She will oversee the PD development, delivery, and participant completion (Goal 1).

Drs. Zoch and Alarcón will serve as the elementary ESL/DL SAC program coordinator and advisor (Goal 2). They will develop the ESL/DL SAC. They will identify and advise Elementary Education majors working on the ESL/DL SAC and alternate as the cohort leader. Dr. Zoch will develop the new course *TED 5XX-Dual Language Instructional Practice*. As needed they will consult with the partnering district coordinators to place preservice teachers in ESL and DL classrooms.

Dr. Schissel will serve as the ESL/DL add-on licensure program coordinator and advisor (Goal 3). She will develop the new course *TED 6XX-ESL/DL Language Assessment*. She will recruit and advise inservice teachers seeking ESL/DL add-on licensure and work with the partnering school districts to monitor the professional development of inservice teachers and their readiness and effectiveness in working with ELs and their families.

District coordinators will lead the family and community engagement activities in K-12 schools (Goal 4). They will recruit and identify the inservice and preservice teachers for the PD and ESL/DL add-on licensure. In addition, they will assist with the placement of preservice teachers pursuing ESL/DL SAC. These preservice and inservice teachers will be engaged in the *Family ESL Classes*, *Technology Workshops*, and *PACT* activities under the guidance of lead teachers and administrators identified by the district coordinators.

Project Evaluation

Evaluation Approach and Logic Model

The evaluation of the proposed program is designed to monitor and provide ongoing feedback for program process and delivery (e.g., program implementation and structure), program content (e.g., cultural and linguistic diversity), family and community engagement, as well as short and intermediate term outcomes (e.g., teacher preparedness, program effectiveness,

student outcomes). As an ongoing process, the results of the evaluation will be used both formatively and summatively to collect baseline data, measure implementation and program effectiveness, provide data for content revisions, improve program delivery, measure and track the learning needs of educators, monitor the impact of PD and TE programs, and measure family and community engagement. A logic model that captures the resources, activities, outputs, outcomes, and long-term impact of the program in included in the Appendix.

The evaluation approach is informed by the sociocultural context of the program, and as such is designed to ensure that program planning, implementation and outcomes are grounded in the local knowledge and cultural and linguistic histories of the program and community. Cultural responsiveness informs how the evaluation is designed, planned and implemented, the questions that guide the inquiry process, the development of all data collection instruments, the construction of control or comparison groups, and the analysis and dissemination of findings (Chouinard, 2016; Chouinard & Cousins, 2009; Hopson, 2009). The use of a mixed-methods approach is recommended to fully address the cultural complexities of the program and community context (Frierson, Hood, Hughes & Thomas, 2010; Hood, Hopson & Kirkhart, 2015).

Evaluation Design

The evaluation framework included in the Appendix provides a description of the questions, as well as specific indicators, data sources and data collection methods. This evaluation is designed as a multi-phase study, with the findings of each phase adding to the knowledge base and informing subsequent phases, allowing the research strategies to be progressively refined as the evaluation unfolds (Chatterji, 2009; Lincoln & Guba, 1985). Overall, a quasi-experimental design will be employed to measure the outcomes and impact of program

activities. For each project goal, baseline data will be collected during Year 1. Once participants are identified for program activities for each goal, a control group will be identified using stratified sampling to match participants' demographic information. Participant attribution will be taken into consideration when comparing pre and post assessment data across experimental and control groups.

Phase I-Project Design and Baseline Data

During this phase, the evaluation will focus on instrument development and baseline data collection. Working closely with PIs and district coordinators, the evaluator will develop evaluation instruments including 1) *Project Needs Assessment*; 2) *Participant Pre/Post Program Survey*; 3) *Parent Pre/Post Survey*; 4) *School Leader Pre/Post Survey*; 5) *Program Satisfaction Survey*; and 6) interview/focus group/observation protocols. The Project Needs Assessment will be administered in the two partnering school districts to collect baseline data. A project database will be set up to record all project data. To evaluate the process of project design and participant recruitment, the meeting minutes, blueprints of PD and revised TE programs, and the family and community engagement plan will be reviewed. The number and demographic characteristics of participants during the design phase program participant recruitment efforts will be documented.

Phase II-Program Implementation and Monitoring

During the second phase, the evaluation will focus on participants' experiences through various project components and the immediate outcomes of the project goals. Project participants will include educators participating in the PD (Goal 1), preservice and inservice teachers participating in TE programs (Goal 2 & 3), and families participating in family and community engagement activities (Goal 4). Prior to the implementation of project activities, the *Pre Program Survey*, *Parent Pre-Survey*, *School Leader Pre-Survey* will be administrated. Post-

surveys will be administered at the end of each program to measure participants' growth in disposition, knowledge, and skills to work with ELs in regular, ESL and DL classrooms, and their effectiveness in working with parents, families and communities. The *Program Satisfaction Survey* will be implemented with all participants. Participation and completion of program activities will be documented. A database will be maintained to record the number and percentage of participants completing programs and receiving certifications.

Phase III-Outcomes and Impact

During this phase, the evaluation will focus on the long-term outcomes and impact of the project goals on program completers and students. Based on criteria specified by PIs, a representative sample of program completers will be identified. Interviews, focus groups and observations will be conducted with the selected completers to explore the effectiveness of program beyond their self-reported data from the program post-survey results. Effective PD, TE, and family and community engagement practices will be documented and recommendations will be shared with PIs and other educators interested in leading similar activities.

The impact study for the student outcomes is designed to meet WWC standards with reservations. This study will use a quasi-experimental design to assess the impact of teacher participation in the proposed PD or TE on student outcomes using inservice teachers who have successfully completed the program. This study will answer the three evaluation questions to examine inservice teacher participation in the EnACTeD program on 1) ELs' academic performance; 2) ELs' need for targeted services; and 3) EL students' school attendance.

ELs of program teachers will be matched to ELs of non-program teachers on baseline characteristics. Comparison students will come from the same two districts, schools, and grades. They will be taking the same courses as treatment students. The student outcome analysis will

explore the following outcomes: 1) academic achievement for students in grades for which a standardized test is required (End of Grade test scores for grades 3 – 8; End of Course test scores for grades 9 – 12); 2) the change in students' need for targeted EL services, determined by the 1st year LEP identification and the year the student exited LEP identification; and 3) attendance.

Data for this analysis will come from the NC Education Research Data Center (NCERDC). The NCERDC contains de-identified data from the NCDPI on the state's public schools, students, and teachers. The datasets allow linking between students and teachers. These data will be used to identify the analytic sample and to assess academic performance, targeted services status, and attendance. To establish baseline equivalence between the analytic sample of treatment and comparison ELs, we will request baseline outcome data as well as data on grade, race/ethnicity, gender, and students identified as economically disadvantaged by NCDPI.

The NPD grant will support implementation during four academic years. Because there is a delay in the availability of administrative data from NCERDC, we will be able to obtain data on the first three years of program implementation for this study.

For the impact study, teacher cohort 1 will include 30 teachers selected to start PD or TE training in 2018-2019. Teacher cohort 2 will be an additional 30 teachers selected to start PD or TE training in 2019-2020. Comparison students will be determined concurrently with treatment groups. A summary of how the analytic sample will be established within the multi-cohort training system is provided in the Appendix. Based on a conservative estimate of 60 treatment teachers and 60 comparison teachers (assuming some program attrition and turnover in the first year of implementation) and an estimated average of five ELs in each classroom, power estimates suggest that this design would be sufficient to detect effects of .20 standard deviations or higher. The impact of teacher cohort 1 will be measured for two different academic years

(2019-2020 and 2020-2021); the impact of teacher cohort 2 will be measured once (2020-2021). Student outcomes will be reported in a summative report in year 5.

Baseline equivalence will be established by identifying the analytic sample of treatment and comparison EL students during the proposed implementation years and then assessing equivalence using data on these students collected during the prior year. Baseline equivalence will be established separately for each outcome such that each outcome may be associated with a different set of comparison EL students. Potential matches will be retained only if Hedge's *g* effect size estimates are $\leq .25$ for all baseline variables. Hedge's *g* was chosen over other effect size measures such as Cohen's *d* as *g* corrects for variance estimation bias when sample sizes are small (Grissom & Kim, 2005). In the event that Hedge's *g* effect size is $< .05$, statistical controls will be included to control for the individual-level baseline characteristics on which groups differ.

Hierarchical linear modeling (HLM) will be used for analysis given the nested structure of the data whereby students are nested within classrooms of teachers participating in the program (Raudenbush & Bryk, 2002). Such models can accommodate one or more levels of nesting hy considering relationships between variables at level 1 (student) and level 2 (teacher) separately. A strength of HLM is that it accounts for the correlations between the level 1 observations through the estimation of random effects (Bauer, Preacher, & Gill, 2006). The following student-level covariates (measured in the baseline period) will be included in the analysis: academic performance, race/ethnicity, eligibility for free and reduced lunch, gender, English language learner status, and special education status.

Other Attachment File(s)

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Appendices

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Guilford County Schools
STRIVING. ACHIEVING. EXCELLING.

March 30, 2016

Department of Teacher Education and Higher Education
The University of North Carolina at Greensboro
School of Education Building. PO Box 26170
Greensboro, NC 27402-6170

To Whom it May Concern,

I am writing this letter in support of the University of North Carolina at Greensboro grant application to the National Professional Development English Language Acquisition State grant.

This grant being proposed by The University of North Carolina in Greensboro, in partnership with Winston-Salem Forsyth County Schools, and Guilford County Schools will design programs to meet the needs of educators working with English Language Learners. The National Professional Development grant will address certification-oriented coursework in language instruction and will include a family engagement component with a focus on literacy. The National Professional Development grant will provide teachers with financial assistance to pay for costs of tuition, fees, and books for enrolling in courses required to complete the certification and licensure.

There is a need to provide high-quality professional development opportunities to English as a Second Language (ESL) and World Language teachers. Professional development will focus on instructional skills and methods to engage English Language Learners and their families. This project showcases a community-centered teacher development model through which teacher educators, teacher candidates, families and community partners are actively engaged in the reciprocal teaching and learning process. We are excited to collaborate with The University of North Carolina at Greensboro in this endeavor.

(b)(6)

Name: Dr. Whitney Oakley
Title: Executive Director PreK-5 Curriculum and Instruction
Guilford County Schools
336-574-2648

P.O. Box 2513 • Winston-Salem, NC 27102-2513

WS FCS
Winston-Salem Forsyth County Schools

April 5, 2017

To Whom It May Concern:

The Winston-Salem/Forsyth County School district (WS/FCS) is pleased to support the University of North Carolina at Greensboro's (UNCG) National Professional Development grant application. We are excited about the partnership with UNCG and the potential benefits for our teachers. Our district has experienced rapid growth in the ELL population in the past 15 years, from 6% to 11% currently. This has created a large need for professional development for teachers in order to meet the needs of our students. With 8 elementary bilingual programs in the district, we are also in constant need of qualified bilingual teachers who are prepared to teach in the immersion and developmental program settings.

Partnering with UNCG for the NPD grant activities will be very beneficial for the WS/FCS. The project goals are in direct alignment with district needs. The professional development opportunities for teachers and the parent involvement activities will help us better meet the needs of students and the community. The dual language concentration for pre-service teachers and the revised Master of Arts in Teaching program will help a great deal in meeting the large demand for bilingual teachers. We are excited about the opportunity to collaborate with the university in these projects and to provide cooperating teachers in our bilingual programs to work with the pre-service candidates.

While the grant activities will be advantageous for the district, WS/FCS also has much to contribute to the project. The Title III/English Learners and World Languages Program Managers will work with UNCG to identify appropriate placements for pre-service candidates, as well as teachers to participate in the professional development activities. In addition, they will help to recruit teacher assistants who qualify for the revised MAT program in order to help train candidates for the bilingual programs. WS/FCS is eager to develop this partnership with UNCG as a result of the NPD grant.

Sincerely,

Dr. Beverly Emory, Superintendent

Position Description of Key Personnel

Dr. Ye He will serve as the **Lead PI** on the project. She oversees the design, implementation, and evaluation of the project with the support from other project personnel. She will lead the planning and delivery of the professional development (Goal 1) specifically and will oversee all Teacher Education (TE) course and program development and approval processes. Her specific responsibilities will include:

- overseeing the overall project design, development, and budget with support from the project manager;
- serving as the project contact for all stakeholders;
- working with other teacher educators at UNCG to support program revision activities;
- working with school district coordinators and school leaders to assist with school-based field experiences and family and community engagement activities;
- supporting the project evaluation team to carry out evaluation plans and to utilize evaluation feedback supporting program improvements;
- leading the design and delivery of the professional development (Goal 1);
- facilitating preservice and inservice teachers in parent, family, and community engagement activities (Goal 4);
- overseeing the annual and final reporting to ensure the achievement of project goals and GPRA performance measures;
- disseminating project findings through web-based articles, technical reports, conference presentations, and peer-reviewed publications.

Dr. Melody Zoch and Dr. Jeannette Alarcón will serve as **co-PIs** on this project. They will lead the development and implementation of the ESL/DL SAC program for Elementary

Education majors. They will alternate as advisors for the SAC cohort. Dr. Zoch will develop the course TED 5XX-Dual Language Instructional Practice. Together, their responsibilities will include:

- leading the ESL/dual language (DL) second academic concentration (SAC) program development as one of the major teacher education program revisions proposed in this project (Goal 2);
- working with elementary program team leaders to identify and advise preservice teachers in the ESL/DL SAC program;
- consulting with district coordinators to place preservice teachers in ESL and DL classrooms;
- supporting preservice teachers' engagement in parent, family and community engagement activities (Goal 4);
- supporting the dissemination of project findings through technical reports, conference presentations, and peer-reviewed publications.

Dr. Jamie Schissel will serve as a **co-PI** on this project. She will lead the development and implementation of ESL/DL add-on licensure program (Goal 3) and support all other project goals. Her responsibilities will include:

- developing TED 6XX - ESL/DL Language Assessment
- leading the ESL/DL add-on licensure program development as one of the major teacher education revisions for inservice teachers (Goal 3);
- working with school district coordinators to identify and advise inservice teachers for the ESL/DL add-on licensure program;

- consulting with district coordinators to provide inservice teachers with ESL and DL classroom teaching and learning opportunities;
- supporting inservice teachers' engagement in parent, family and community engagement activities (Goal 4);
- supporting the dissemination of project findings through technical reports, conference presentations, and peer-reviewed publications.

Mrs. Mayra Hayes, Mrs. Liliana Jordanov, Mr. David Sisk, and Mrs. Leslie Baldwin will serve as district coordinators on this project. Mrs. Hayes and Mrs. Jordanov will coordinate activities in Guilford County Schools (GCS) and Mr. Sisk and Mrs. Baldwin will coordinate activities in Winston Salem/Forsyth County Schools (WSFCS). For this project, their responsibilities include:

- supporting the design and delivery of the professional development (Goal 1);
- identifying lead educators and community partners to serve on the project design teams;
- recruiting teachers for the professional development and add-on licensure program (Goals 1 & 3);
- selecting and identifying supervising teachers for the preservice teacher education programs (Goal 2);
- supporting the supervision of preservice and inservice teachers as they complete application tasks required in the professional development and teacher education programs;
- leading parent, family, and community engagement activities at the schools (Goal 4); and
- supporting the participant selection and data collection for project evaluation efforts.

Project Manager will have the following responsibilities:

- working closely with the project team, participants, teachers and partners to provide support in program logistic management (e.g. coordinate and organize project meetings, prepare program files and materials, order supplies, and keep meeting minutes);
- supporting the lead PI for project and fiscal management;
- working with the evaluation team to maintain the project database;
- working with the district coordinators and schools to coordinate field experience assignments and supervision for preservice and inservice teachers.

The desired candidate for this position will have experience working in university administrative settings, with preference for experience in K-12 settings. Applicants from traditionally underrepresented populations based on race, color, national origin, gender, age, or disability will be encouraged to apply for this project assistant position. Dr. He will supervise the project manager for this project.

Graduate Assistant (GA) will be hired to support the design and delivery of project activities. The GA will be supervised by Dr. Schissel. The GA will work with the professional development design team to support the design of the professional development modules. S/he will serve as the university supervisor for preservice and inservice teachers. Desired candidates are doctoral students in the Teacher Education and Higher Education department with K-12 teaching experiences in ESL or DL classrooms. We would recruit candidates from traditionally underrepresented populations for the graduate assistant position.

Dr. Jill Chouinard and **Dr. Bryan Hutchins** will lead the evaluation efforts for this project. Dr. Chouinard will serve as the lead evaluator and oversee the evaluation design, data collection and analysis, and report writing. She will hire one graduate evaluation assistant to assist with the evaluation data collection, database management, data analysis, and report writing. She will

work closely with the PIs to providing ongoing evaluation feedback and will provide annual project report and final project report based on evaluation findings. Dr. Hutchins, project evaluator from the SERVE Center, will focus on the evaluation of the impact analysis of student outcomes. Dr. Hutchins will work closely with Dr. Chouinard and Dr. He to manage the design, sampling, data collection, data analysis, and reporting on project impact.

Conrse Descriptions

TED 335-Language Foundations for Teachers (3credit hours)

Introductory study of the components of English phonology, morphology, semantics, syntax, and sociolinguistics with a special emphasis on the K–12 classroom application of this knowledge.

TED 523-Legal, Historical, and Cnltural Implications of ESL (3 credit hours)

Exploration of legal and historical bases of ESL instruction. Analysis of differences among home and school cultures, especially related to language development.

TED 506-Institutes in Education and TED 590-Community Literacy and Adnlt Learners (3 credit hours each)

Guided field experience courses. TED 506 focuses on instruction in K-12 settings. TED 590 focuses on instructional practices in adult education settings and literacy practices in the local communities.

Internship and Student Teaching for Elementary Education Majors

Supervised in-school internship and on-campus seminar focused on applying research-based principles from educational psychology and classroom management to teaching and learning. Students in ESL/DL SAC will he placed in schools with ESL and DL programs.

TED 5XX-Dual Language Instructional Practice-new (3 credit hours)

New course that will be developed to address dual language instructional practices.

TED 604 Applied Linguistics (3 credit hours)

Linguistics theories on phonology, morphology, syntax, psycholinguistics and sociolinguistics; basic theories of second language acquisition; and application of the theories and models of applied linguistics in ESL classroom teaching.

TED 618 Teaching English as a Second Language with Practicum (3 credit hours)

Specific instructional methods and strategies to facilitate content area instruction and English language development for students who speak languages other than English.

TED 6XX-ESL/DL Language Assessment (3 credit hours)

New course designed to review classroom-based language assessment methods including: assessment design, development, selection, use, and language proficiency scales for language learners in ESL/EFL, bilingual/dual language, and foreign language classrooms. Issues of validity, reliability, practicality, and washback/impact of test use.

Evaluation Framework

Evaluation Questions	Indicators	Data Sources	Data Collection Methods
	PROCESS/ENGAGEMENT QUESTIONS		
P-01 In what ways, and to what extent are school districts, UNCG and communities collaborating in the design and delivery of PD, teacher education program and family engagement activities to prepare qualified educational professionals to work with English learners and their families?	• # and type of people engaged in the PD design, revision of teacher education programs, and family and community engagement activities • satisfaction of the partnership and collaboration	• School coordinators and lead educators; • Administrators and teachers • Community partners; • UNCG faculty, staff and students	• **Program Needs Assessment** • Leadership Team and Design Teams Meeting Minutes • Blueprint of PD and revised teacher education programs • Family and Community Engagement Plan
P-02 How are program participants, including preservice and inservice teachers, administrators, other school personnel, families, and community partners, identified and recruited for the proposed program?	• # and demographic characteristics of participants • participants' prior knowledge	• Preservice teachers • Inservice teachers • Administrators and other educators • Families and community partners	• **Program Pre-Survey** • Program Participation Database
P-03 To what extent are program participants satisfied with the program experiences, including professional development, teacher education programs, and family engagement activities?	• #/% of participants satisfied with program activities and experiences	• Preservice teachers • Inservice teachers • Administrators and other educators • Families and community partners	• **Program Satisfaction Snrvey** • Program Observation • Interview/Focus Group

Evaluation Questions	Indicators	Data Sources	Data Collection Methods
OUTCOME QUESTIONS			
O-01 What is the number and percentage of participants, including preservice teachers, inservice teachers, and other educators completing the PD and revised preservice and inservice teacher education programs? (GPRA 1 & 2)	• #/% of preservice teachers completing program activities (GPRA 1) • #/% of inservice teachers completing program activities (GPRA 2)	• Preservice teachers • Inservice teachers • Administrators and other educators • Families and community partners	• Program Participation Database
O-02 What is the number and percentage of educators become certified in ESL or ESL/Dual Language as a result of the PD and revised preservice and inservice teacher education programs? (GPRA 3)	• #/% of educators certified in ESL or ESL/Dual Language (GPRA 3)	• Preservice teachers • Inservice teachers • Administrators and other educators	• Program Participation Database
O-03 How, and to what extent are educator participants prepared to work effectively with ELs in the classroom? To engage with families and with the community? What works well? Where are the challenges identified? (GPRA 4, 5, & 6)	• #/% of participants rate program as effective (GPRA 4) • #/% of school leaders, other educators and employers rate participants as effective (GPRA 5) • #/% of participants rate program effective in increasing their knowledge and skills related to parent, family and community engagement (GPRA 6)	• Preservice teachers • Inservice teachers • Administrators and other educators	• **Program Post-Survey** • Program Participation Database • Interview/Focus Group

Evaluation Questions	Indicators	Data Sources	Data Collection Methods
O-04 How and to what extent have family and community programs increased the number of school-family collaborations and involvement in family literacy activities? What kinds of things are they doing differently as a result of their participation in the program?	• #/range of family and community engagement programs and activities • Participating parents' English proficiency, computer literacy, and skills to conduct home literacy activities	• Preservice teachers • Inservice teachers • Administrators and other educators • Families and community partners	• **Parent Pre/Post Survey** • Program Observation • Interview/Focus Group
O-05 What is the impact of inservice teacher participation in the program on EL students' academic performance?	• EL students' standardized End of Grade or End of Course assessment scores	• NCERDC assessment records	• Secondary data
O-06 What is the impact of inservice teacher participation in the program on EL students' need for targeted services?	• EL students' need for LEP services	• NCERDC student demographic records	• Secondary data
O-07 What is the impact of inservice teacher participation in the program on EL students' school attendance?	• EL students' school attendance records	• NCERDC attendance records	• Secondary data

Student outcome analytic sample for EnACTeD project

	Multi-year Intervention			
2017-2018 Project planning and development year, recruit participants;	Cohort 1 teachers recruited (Spring 2018)			
2018-2019 PD participation for Cohort 1 teachers (N=30); Baseline for students of Cohort 1 teachers	Cell 1-A Cohort 1—PD Students of Cohort 1 teachers, Baseline. Determine comparison students for baseline.	Cohort 2 teachers recruited (Spring 2019)		
2019-2020 (Implementation Year 1 for Cohort 1; PD participation for Cohort 2 teachers; Baseline for students of Cohort 2 teachers	Cell 2-A Cohort 1 teachers—Year 1 of implementation (Baseline for Cohort 1 teachers, second year of Implementation students)	Cell 2-B Cohort 2—PD Students of Cohort 2 teachers, Baseline. Determine comparison students for baseline.	Cohort 3 teachers recruited (Spring 2020)	
2020-2021 (Last year of data collection; Implementation Year 2 for Cohort 1; Implementation Year 1 for Cohort 2; PD participation for Cohort 3.	Cell 3-A Students of Cohort 1 teachers; Second year of Implementation	Cell 3-B Students of Cohort 2 teachers; First year of Implementation	Cell 3-C Cohort 3—PD	Cohort 4 teachers recruited (Spring 2021)
2021-2022 (Implementation Year 3 for Cohort 1; Implementation Year 2 for Cohort 2; Implementation Year 1 for Cohort 3; PD participation for Cohort 4.	Cell 4-A Third year of implementation	Cell 4-B Second year of Implementation	Cell 4-C Year 1 of Implementation Cohort 3	Cell 4-D Cohort 4—PD

Note: Shaded squares included in impact analyses. Cohorts refer to groups of teachers. Comparison within each year is unique, measurement is not longitudinal.

Evaluation Logic Model

Resources	Activities	Outputs	Outcomes	Impact
• UNCG Faculty, Staff, and facilities • GCS and WSFCS Schools and Facilities • Educators and Community Partners • Existing PD Curriculum • Existing Programs at UNCG and partnering schools	**Goal 1**-PD Design, Participant Recruitment, PD Module and Application	**Goal 1**- satisfaction of PD design and delivery; # and characteristics of PD participants	• # and % of program completers • # and % of educators certified • # and % of participants rate programs as effective • # and % of employers rate participants as effective	• Enhanced PD and TE for ELs; • Pipeline of effective and certified ESL and DL educators; • Stronger family and community engagement in schools; • Increased EL academic success
	Goal 2-3-Teacher Ed (TE) Programs Revision, Recruitment, Coursework and Field Experiences	**Goal 2-3**- satisfaction of revised TE program experiences; # and characteristics of participants		
	Goal 4-Family and Community Engagement Program Design and Delivery with Teachers from PD and TE Programs	**Goal 4** satisfaction of family and community engagement programs; # and characteristics of teachers involved in the family and community engagement experiences		

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The Impact of an Instructional Intervention on the Science and Language Learning of Middle Grade English Language Learners

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The Impact of an Instructional Intervention on the Science and Language Learning of Middle Grade English Language Learners

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Abstract: The goal of this study was to assess the effectiveness of an intervention—Quality English and Science Teaching (QuEST)—designed to develop the science knowledge and academic language of middle grades English language learners studying science in their second language and their English-proficient classmates. Ten sixth-grade science teachers in 5 middle schools in a large south Texas district participated in the study. For each teacher, 2 sections were randomly assigned to the intervention, Project QuEST, and 2 sections were randomly assigned to the district curriculum. The sample of students included English language learners, former English language learners, and fluent English-speaking students. Treatment effects were tested separately for science knowledge and vocabulary using a 3-level multilevel analysis of covariance (students nested within section, sections nested within teacher, and teacher) with the analogous pretest serving as the covariate. Analyses included fixed effects of treatment assignment and the covariate. Treatment effects were tested at the level of the section. Results indicated that posttest differences favoring the treatment group sections were statistically significant for both science knowledge and vocabulary.

Keywords: English language learners, science instruction

The purpose of this study was to develop, implement, and test the effectiveness of an intervention, Quality Science and English Teaching (QuEST), designed to improve the English language proficiency and science knowledge of middle grade English language learners (ELLs) and their English-proficient classmates. Current national educational policy embodied by the No Child Left Behind Act requires that all students, including ELLs, meet high standards in science as well

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as in reading and math. Although expectations for content area achievement are high, findings from recent international and national studies underscore the importance of improving the science education of middle and high school U.S. students. While the National Assessment of Educational Progress science scores indicate students who were identified as ELL who could be assessed[1] had higher average science scores in 2005 than in previous assessment years (1996 and 2000) at some grade levels (4th and 8th), their scores at all grade levels were considerably lower than their peers who were not ELLs—121 scale score points compared with 153 scale score points at the 4th-grade level, 107 scale score points compared with 151 at the 8th-grade level, and 108 compared with 140 at the 12th-grade level (National Center for Education Statistics, n.d.).

A thorough review of the research uncovered six quantitative studies focused on effective science instruction for upper elementary school and middle school students—two experimental studies (Lee, Maerten-Rivera, Penfield, LeRoy, & Secada, 2007; S. Lynch, Kuipers, Pyke, & Szesze, 2005) and four pre-experimental studies with pre–posttest designs (Amaral, Garrison, & Klentschy, 2002; Cuevas, Lee, Hart, & Deaktor, 2005; Fradd, Lee, Sutman, & Saxton; 2002; Lee, Deaktor, Hart, Cuevas, & Enders, 2005). The majority of the studies uncovered in the review were descriptive studies that documented the role of culture and language in science learning or the role of classroom discourse and scaffolding in mediating language and science learning.

EFFECTIVE SCIENCE INSTRUCTION FOR ELLs

Findings from the experimental and pre-experimental studies indicated that the methods used in effective first-language research, most notably inquiry-based learning, may be a good starting place but are not sufficient to help ELLs learn science. S. Lynch et al. (2005) examined the effect of a highly rated middle grades curriculum unit, Chemistry that Applies (Michigan Department of Education, 1993) that was congruent with National Science Education Standards (National Research Council, 1996). The intervention unit consisted of 18 of the 24 Chemistry that Applies units; it was "student-centered, hands-on, and phenomenon-based in which students explored four chemical reactions with increasing sophistication with the aim of acquiring a deep understanding of the target standard/benchmark" (p. 921). No alterations for students' language

[1] In 2005, the National Center for Education Statistics reported that 6% of public and nonpublic school 8th-grade students were identified as ELL; 1% were excluded from the science assessment. Of the 5% who took the assessment, 4% took it without accommodations and 1% took it with accommodations. The comparable numbers for 12th graders were 4% identified, 1% excluded, and 4% assessed, 3% without accommodations and 1% with accommodations. Details may not sum to totals because of rounding.

or cultural backgrounds were described by the authors. The comparison condition consisted of a menu of options approved by the district ranging from traditional science textbooks to reform-based chemistry units. Three groups of eighth-grade students—those who never received English as a second language (ESOL) services, those who had received but exited from ESOL services, and those currently receiving ESOL—were involved in the study. Findings indicated there were significant differences in favor of the intervention on science achievement, basic learning engagement, and goal orientation of treatment students compared with control students for the group as a whole. Science achievement was measured with the Conservation of Matter Assessment, basic learning engagement was measured with the Basic and Advanced Learning scales, and goal orientation was measured with the Mastery Goal Orientation scale.[2] However, there were not significant differences for intervention students compared with control students when these groups consisted of students currently receiving ESOL services. In addition, when researchers examined the growth in science knowledge of the three groups, they found growth was nearly flat for both intervention and control students who were current recipients of ESOL services, whereas this was not the case for students never receiving ESOL services or students who had received but exited from these services.

Interventions that build on effective first language science research but also take into account the language and cultural backgrounds of ELLs were more promising. The second experimental study (Lee, Maerten-Rivera, et al., 2007) took into consideration students' language and cultural backgrounds as well as best practices in science teaching. The study is part of a 5-year professional development intervention—Promoting Science among English Language Learners—aimed at improving science and literacy achievement of ELL students in urban elementary schools. Researchers implemented an inquiry-based intervention consisting of curriculum units that included student booklets, teachers' guides, and science supplies, along with teacher workshops implemented throughout the school year. The science units for Grade 3 focused on measurement, states of matter, and water cycle and weather and were developed to promote student initiative and responsibility in conducting science inquiry. They were guided by the National Education Standards (National Research Council, 1996). The intervention also attended to both the language and literacy needs of ELLs. Student booklets included activities and strategies to strengthen students' reading and writing by using "specific comprehension questions about inquiry activities, strategies to enhance comprehension of science information in expository text at the end of each lesson, and [focus on] various language functions (e.g., describing, explaining, reporting, drawing conclusions "in the context of science inquiry" (p. 38). Language needs were

[2]These are all researcher-developed measures; see S. Lynch et al. (2005) for additional information.

also addressed by teaching and reinforcing key vocabulary and using "multiple modes of communication and representation (verbal, gestural, written, graphic) to enhance students' understanding" (p. 38). The lessons drew on students' culture by providing science terms in Spanish and Creole. Professional development was an important component. During the 1st year of the project, teachers participated in 5 full-day workshops that focused on science and math content as well as language and literacy development. Students' science knowledge was assessed using a test developed by the authors that measured students' knowledge of key science concepts and big ideas of patterns, systems, models, and relationships for the science topics taught during the school year.

Findings from the Promoting Science among English Language Learners intervention indicated significant pre- to posttest gains in science achievement for students in a treatment group that included current ESOL students, students exited within 2 years from ESOL, and students who had never been in ESOL or had been exited from ESOL for more than 2 years. Students currently in ESOL and students who had exited from ESOL or never been in ESOL showed comparable gains from pretest to posttest, suggesting that the intervention was not differentially effective for specific subgroups of students based on their status of participating in ESOL or not. However, it is important to note that the analyses that reported on gains did not compare gains for students receiving the intervention to gains for students who did not receive the intervention. Thus, pre–post gains cannot be unambiguously attributed to treatment per se and potentially reflect effects of the intervention, maturation, history, and other possible events that might have occurred between the pretest and posttest. In follow-up work with fifth graders, there were significant differences in favor of the treatment group on the Florida Science test.[3] In addition, the treatment group students when compared with control students showed higher scores on the measurement strand of a statewide math assessment.[4] The authors attribute the promising results of the intervention in part to their integrated approach to professional development that addressed ELL students "learning needs in English and the content areas simultaneously" (p. 49) as well as to providing teachers with the supplies they needed to carry out the intervention and ensuring that schools actually provided dedicated time for science instruction.

An array of pre-experimental research focused on improving science outcomes for ELLs helped inform the Lee, Maerten-Rivera, et al. (2007) study previously referenced with good results. As with the experimental studies just

[3]It should be noted that this analysis did not control for initial levels of science achievement because such a measure of science achievement was not available for students in the comparison schools. (Okhee Lee, personal communication, December 23, 2008)

[4]Although all demographic groups of students (including ELLs) in the treatment group consistently performed better than their counterparts on the measurement strand of the Florida Math test, the difference was not statistically significant.

described, these studies used curriculum and instructional methods that have proven to be successful with monolingual English students, in most cases inquiry-based learning, but addressed students language and literacy needs and took into consideration their cultural backgrounds (Amaral et al., 2002; Cuevas et al., 2005; Fradd et al., 2002; Lee et al., 2005; Lee, Maerten-Rivera et al., 2008). For example, in one study (Fradd et al., 2002) each lesson emphasized a specific language function (e.g., describing, explaining), focused on vocabulary development, and allowed ELLs to use a variety of representational formats to communicate science knowledge. In Amaral et al., 2002, while most of the science instruction was in English (even in the bilingual arm of the study), teachers had the freedom to use Spanish for facilitation of instruction, including the use of support materials written in translation.

ROLE OF ENGLISH LANGUAGE PROFICIENCY, LEARNING IN A SECOND LANGUAGE, AND FIRST LANGUAGE KNOWLEDGE IN SCIENCE LEARNING

A second group of studies examined how levels of second language proficiency influence science learning; they have consistently found that limited English proficiency inhibited students' science achievement when learning was in English (e.g., Curtis & Millar, 1988; Tobin & McRobbie, 1996; Torres & Zeidler, 2002). These studies provide support for the premise that it is important to consider ELL students' levels of English proficiency in teaching them science.

A series of studies also investigated the role of classroom discourse and of scaffolding in mediating language and science learning in a second language (Gibbons, 2003; Parkinson, Jackson, Kirkwood, & Padayachee, 2007; Young & Nguyen, 2002). As Gibbons aptly pointed out "English is both a target and a medium of instruction" for ELLs, and as such "the construction of curriculum knowledge has to progress hand-in-hand with the development of English" (p. 247). These studies describe how teachers, through interactions with students or scaffolding texts and lessons, mediate between students' current linguistic levels in English and initial levels of science understanding on the one hand and more academic language and the targeted science knowledge on the other. For example, in one study, teachers mediate language learning in several ways—mode shifting through recasting (e.g., recapping by the teacher to fit the broader pedagogic objectives of the curriculum), signaling to learners how to reformulate (e.g., signaling a need for clarification, giving the student an opportunity for self-correction, and supplying a recoded version), and recontextualizing personal knowledge (e.g., helping students use the proper register and more specificity in their explanations; Gibbons, 2003, p. 257).

Finally, studies have also indicated that students' first language knowledge, when the first language shares cognates with English, can be helpful in science learning in a second language. In a recent study, Bravo, Hiebert, and Pearson

(2007) found that approximately 88% of key science words selected for instruction were cognates; about half of the words were high-frequency words in Spanish, making them more likely to be known by Spanish speakers even if they had not had high levels of schooling in their first language. Previous research has indicated that from Grades 4 to 8, student recognition of cognates increases rapidly (Hancin-Bhatt & Nagy, 1994) and that older students are able to transfer cognate knowledge from their first to their second language (Durgunoglu, Nagy, & Hancin-Bhatt, 1993; Jimenez, García, & Pearson, 1996).

COMMUNICATION AND INTERACTION PATTERNS AMONG CULTURALLY DIFFERENT SUBGROUPS

A third group of studies focused on developing science knowledge in ELLs describes communication and interaction patterns among culturally different subgroups of students or students and teachers when engaged in scientific activities (e.g., Lee, Fradd, & Sutman, 1995; Rosebery, Warrant, & Conant, 1992; Westby, Dezale, Fradd, & Lee, 1999), noting differences and similarities between cultures For example, in one study (Lee & Fradd, 1996) for bilingual Spanish-speaking teachers and dyads of students, discourse was characterized by "multiple talk, simultaneous turn-taking, phrases and incomplete sentences combined with long monologues, and extensive gestures and facial expressions," whereas the discourse patterns of bilingnal Haitian Creole teachers and dyads of students consisted of "linear talk; seqnential turn-taking combined with pauses and wait times; teacher talk in sentences and paragraphs, followed by student responses in phrases and sentences; and extensive gestures and facial expressions" (p. 281). Although this research has not examined changes in students' engagement or participation in science or science outcomes related to these discourse patterns, previous research has found that culturally congruent interaction patterns used in classroom teaching promote higher levels of student engagement (Au, 1980).

PROJECT GOALS

An overriding principle in our research was that successful interventions must be effective for ELLs but must not disadvantage English-proficient students because English-proficient students and ELLs are most often together in the same classrooms in the middle grades. Thus, the intervention used as a starting place what we know about high-quality science instruction for upper elementary and middle grades students. It also draws on research about the role of English language proficiency, learning in a second language, first language knowledge, and classroom discourse in science learning to tailor the intervention to meet the language and literacy needs of ELLs. More specifically, the intervention (a)

was aligned with National Science standards, (b) used inquiry-based learning, (c) attended to the language and literacy development of students in the context of science instruction, (d) used students' first languages and interaction patterns for facilitating instruction, and (e) provided intensive professional development focused on science and as well as language and literacy development.

This study is designed to assess the effects of an intervention aligned with empirical research on effective science instruction for ELL students (Project QuEST) on the English vocabulary development and science knowledge of ELLs and English proficient students. The study was designed in such a way that individual differences in teachers were controlled by randomizing different middle school science sections for the same teachers to treatment and control conditions. Both ELLs and English-proficient students are incorporated in our study designs, and we have tested explicitly for interactions of language status with experimental and traditional forms of instruction.

METHOD

Research Context and Participants

The district in which the study was implemented is a large, high-poverty district in the Rio Grande Valley with a high percentage of Latino English-language learners (Zehr, 2008). In the 2007–2008 school year, 48,858 students were enrolled. Approximately 94% of the students were low income; approximately 98% were Latino, and 42% were ELLs. In sixth grade, out of a class of approximately 2,500 students, 988 of the students were enrolled in bilingual or ESOL services. The district does not provide middle grade science instruction in languages other than English. Students are grouped into classes based on their prior science achievement with some students placed in Pre-AP or gifted classrooms. The classes were mixed with regard to language proficiency levels.

Participants in this study included 890 students; 562 were ELLs and 328 were English proficient. Students' designation was based on district language proficiency testing. ELLs per class ranged from 3 to 31 (16–92% per class). The research involved 40 sections[5] of students receiving their science instruction from one of 10 teachers at 5 middle schools. There are 10 middle schools in the district; five principals agreed to participate in the study. The sixth-grade teachers at these schools either elected to participate or were assigned to participate by their principal because they were new to teaching. Four of the 10 teachers were new to teaching. Each teacher contributed 4 sections, 2 of which were randomly assigned to treatment and 2 of which were assigned to typical

[5]At the middle grades level, a section is a classroom of students. In this district, middle grades teachers were generally assigned six sections of students a day.

Table 1. Sample sizes at pretest and posttest for each section assigned to treatment and control for each teacher

	Control				Treatment			
	Section A		Section B		Section C		Section D	
Teacher	Pre	Post	Pre	Post	Pre	Post	Pre	Post
1	31	32	28	26	21	20	24	22
2	30	32	22	24	24	22	22	20
3	30	29	23	26	27	26	28	29
4	13	15	20	21	26	25	18	19
5	19	20	16	16	17	17	22	21
6	18	18	25	25	15	15	17	19
7	17	18	17	18	12	11	15	15
8	13	13	22	23	21	21	18	16
9	27	27	23	22	22	22	24	24
10	25	25	28	28	22	22	23	23
Total	223	229	224	229	207	201	211	208

Note. Sample sizes may differ from pretest to posttest due to absenteeism at either time point. The section labels A to D are simply used to show the four sections per teacher and do not reflect any instructional or research design differences.

instruction. Class sizes of the 4 sections for each teacher are presented in Table 1 for the pretest and posttest, which shows that sections were comparable in size within and between teachers, ranging from a minimum of 11 to 13 to a maximum of 29 to 32 for treatment and control, respectively.

Instructional Intervention

Overview. In the district, the science curriculum was aligned with state and district standards, and at the sixth-grade level consisted of the Prentice Hall textbook and workbook, and district developed labs aligned with textbook content. The intervention, called Project QuEST, was composed of two components that were not present in the district at the time of the intervention: instructional materials and professional development to help teachers use the instructional materials. The instructional materials included a teacher guide and instructional charts, a student guide and instructional charts, and supplies for hands-on science activities. Professional development included three training sessions and ongoing weekly mentoring. Both the instructional materials and professional development are described in greater detail in the next section. The instructional materials consisted of one 5-week unit and one 4-week unit; both focused on Living Systems and the Environment. Each week consisted of

five 40-min lessons (the length of time allocated by the district for daily science instruction). The instructional materials were aligned with the Texas state and district sixth-grade science standards, covered the same content as was taught in the district's sixth-grade classrooms over the course of 12 weeks, and used the same textbook that was used in the regular classrooms.

Instructional Materials. The materials development team consisted of science educators, as well as reading and ESOL specialists. The instructional materials and practices built on a highly rated inquiry approach to teaching science to monolingual English speakers developed by the Biological Science Curriculum Study[6] and used in the research just cited. The approach puts a premium on hands-on experimentation that aids students in building their own understanding of new concepts. The model uses a Five "E" approach to learning: engage, explore, explain, extend, and evaluate.[7] The goal of the engage stage is to get students interested in the upcoming task. Examples of activities during this stage include a quick demonstration, an interesting reading, or a provocative question with discussion. In the exploration stage, students get directly involved with the key concepts involved in the lesson through a variety of hands-on activities. During the explain stage, students work to more fully understand the experience they have just had through exposure to additional information, which may include such activities as listening to teacher explanations; reading; watching videos; and discussing their observations, ideas, and hypotheses; and posing questions. In Stage 4, extend, students have an opportunity to apply the concepts they have learned to new but similar situations. Examples of activities include further lab investigations, involvement in related projects, or solving similar, related problems. During this stage students are refining and deepening their understanding of the concepts by experiencing new applications and perhaps even exceptions. The evaluate stage consists of formal and informal assessment that is ongoing. It may involve lab reports, presentations, or discussions where the teacher is looking for students' ability to apply new concepts and skills.

The research highlights the importance of building on effective first language science research but also taking into account the language and cultural backgrounds of the students (Amaral et al., 2002; Cuevas et al., 2005; Fradd et al., 2002; Lee et al., 2005) and scaffolding science instruction (e.g. though classroom discourse) so it is more comprehensible for ELLs (Curtis & Millar, 1988; Gibbons, 2003; Parkinson, et al., 2007; Tobin & McRobbie, 1996;

[6]Biological Science Curriculum Study is a nonprofit corporation that endeavors to improve all students' understanding of science and technology by developing exemplary curricular materials, supporting their widespread and effective use, providing professional development, and conducting research and evaluation studies.

[7]While teachers in the district had been provided with information about the 5 E approach, they had not been given instructional materials consistent with this approach.

Torres & Zeidler, 2002; Young & Nguyen, 2002). Based on research just cited about effective science instruction for ELLs, scaffolding was used to ensure students comprehended the instruction. Examples included the use of visuals (e.g., illustrations of the vocabulary concepts), graphic organizers, experiments, and demonstrations; modeling for students to ensure they understood the tasks required of them; and ongoing discussion among teachers and students in the process of performing science tasks and reading the textbook to clarify the material being presented. In addition, students' English oral proficiency was developed in the context of science instruction through ongoing discussion, the manner in which teachers responded to students (e.g., clarifying and elaborating on student responses), explicit vocabulary instruction in which students were taught approximately 15 new vocabulary words per week selected from the sixth-grade textbook, including general academic vocabulary (e.g., *structure*, *development*, *function*), and discipline specific vocabulary (e.g. *organism*, *cell*). The general academic vocabulary was selected based on its frequency in academic text (Academic Word List), and the discipline specific vocabulary was selected because it was essential to understanding key science concepts presented in the lessons. Glossaries of the weekly vocabulary that included visual images, simple definitions, and Spanish translations were provided to help reinforce word meaning. Students were taught strategies to improve word learning (i.e., drawing on cognate knowledge; using root words, base words, and affixes). Throughout the week, students participated in guided reading of the textbook in which the meaning of discipline-specific vocabulary, general academic vocabulary, and science content was clarified. Limited English proficient students were partnered with more proficient English speakers as yet another way to help build students' oral English proficiency.

Professional Development. Professional development was provided by the Principal Investigator and science specialists hired by the project the help craft the curriculum. The teachers participated in professional development prior to and during the implementation of the curriculum. The initial meeting of teachers occurred for 3 hr on January 15, 2007. The purpose of the meeting was to provide an introductory overview of the project, share 3 weeks of draft curriculum, outline the activities for the remaining 6 weeks of the program, and solicit feedback from teachers. The second meeting was an all-day meeting that took place on February 17, 2007. The purpose of the meeting was to give teachers an opportunity to review the first 5 weeks of the curriculum. At the third meeting that took place on April 23, 2007, for 3 hr teachers had an opportunity to review the final 3 weeks of curriculum. In addition, a mentor who had been trained by the Principal Investigator and who had attended the professional development sessions worked with teachers on a weekly basis to help ensure that the curriculum was implemented with fidelity. The mentor used a protocol to observe instruction and then met with teachers to discuss strengths and weaknesses in implementation. The mentor was an experienced educator

with a science background and local to the district in which the intervention occurred.

Research Procedures

Research Design. The intervention was implemented in 20 sixth-grade science classrooms taught by 10 teachers in five middle schools, whereas the district's standard curriculum was implemented in 20 sixth-grade science classrooms taught by these same 10 teachers. Teachers taught two of their science sections using the QuEST materials and strategies for a period of 9 weeks and taught two other sections of science using the district standard curriculum over the same period. For each teacher, the four sections were randomly assigned to QuEST and to the district curriculum so that each teacher taught two sections under each condition. The sample of students included ELLs, former ELLs, and fluent English-speaking students.

Assessment Instruments. All students in the 40 science sections were assessed using the vocabulary and passage comprehension subtests of the GRADE assessment, Form A, Level M, prior to the onset of treatment as a safeguard against possible unhappy randomization. That is, it was used to evaluate group comparability in vocabulary and reading at the pretest. In addition, students were assessed in English for science and vocabulary knowledge using researcher-developed assessments aligned with the district's sixth-grade science curriculum covered during the 9 weeks the intervention was in place, namely, Living Systems and the Environment. The items for the science tests were selected from items released from past state science tests as well as from an item bank available from the publisher of the textbook both treatment and control classrooms were using. On the pre- and posttest for Unit 1 item types were 13 multiple-choice and 5 short response; on the pre- and posttest for Unit 2, item types were 17 multiple-choice questions. Items measured students' factual knowledge and conceptual understanding. The researcher developed vocabulary measure consisted of both the general academic and discipline specific words that appeared in the textbook. The discipline specific words were targeted by the publisher as key science words; the general academic words came for the textbook material both treatment and control students were learning and were selected because they were high-frequency general academic words (Coxhead, 2000). Both of the researcher-developed assessments consisted of one form that measured material presented in the first unit and a second form that measured material presenting in the second unit. A unit covered roughly 6 weeks of instruction.

The pretest for Unit 1 was collected prior to the onset of instruction for Unit 1, whereas the pretest for Unit 2 was collected at the end of instruction for Unit 1 along with the posttest for Unit 1 and prior to the onset of instruction

Table 2. Reliability estimates using coefficient alpha for all pre- and posttest assessments

Assessment	Domain	Time Point	α
GRADE	Vocabulary	Pretest	.77
	Passage Comprehension	Pretest	.85
Experimental unit 1	Science	Pretest	.28
		Posttest	.75
	Vocabulary	Pretest	.93
		Posttest	.96
Experimental unit 2	Science	Pretest	.58
		Posttest	.77
	Vocabulary	Pretest	.94
		Posttest	.96

for Unit 2. For the sake of analysis, scores were summed across the assessments for each of the two units to create a composite measure of science knowledge and a composite measure of vocabulary, each administered pre- and postinstruction.

Reliability estimates based on coefficient alpha are provided for all assessments in Table 2. By and large the reliability estimates in Table 2 indicate that the assessments are functioning as desired. The only problematic values are for the experimental science pretests, which suggest that the tests may not be reliable. However, examination of the item means for the pretests for Units 1 and 2 showed that pass rates at the pretest were low for most items (only 5 of 17 items had means above .25; i.e., for only 5 items did 25% or more of the students answer the item correctly). The fact that reliability for the posttest for Unit 1 and Unit 2 of the science assessment exceeded .75 suggests that the low reliability at the pretest is a result of low science knowledge among the students prior to instruction. Because students lacked the science knowledge to be taught in that unit prior to the onset of instruction, they were answering questions largely at random, leading to poor reliability for both units at the pretest. Following instruction, the reliability for each unit assessment is well within the acceptable range.

A fidelity/quality of instruction observation instrument was developed by the research team and used to document whether and how well the specific components of the intervention were being implemented in the treatment classrooms, the activities that were taking place in the control classrooms, and the general quality of classroom instruction. The same instrument was used in both treatment and control classrooms. The instrument asked observers to rate up to eight instructional activities on whether the activity had been implemented (fidelity), including the review of vocabulary and two student activities; the application, including three student activities; and the wrap up, including two

student activities. These elements were rated as absent or present for fidelity using a 4-point Likert-type scale ranging 1 (*poor*), 2 (*fair*), 3 (*good*), and 4 (*very good*). In addition, the observer could rate the item as NA if the element or activity was not applicable in the particular lesson being observed. An item could also be rated as Not Completed if the teacher did not perform and element or activity, although it was, in fact, applicable to the particular lesson being observed. To evaluate fidelity to treatment, the ratings were averaged across those items deemed relevant to the particular observed lesson. Items rated as Not Completed were given a score of 0 for the purpose of computing the mean rating for a teacher. A 4-point Likert scale was also used to rate teachers with respect to the quality of instruction including overall clarity of directions, classroom management, preparation, responsiveness to students, the inclusion of partner work when it was called for and the quality of partner work, and pacing.

Data Collection and Coding. All student assessments were group administered by trained research assistants prior to or following each curricular unit. For the sake of analysis, the premeasures for the two 6-week units were combined into a single pretest score and the posttest measures for the two 6-week units were combined into a single posttest score. Scores were computed separately for Science and Vocabulary.

Each teacher was observed teaching treatment and control sections by trained observers for the sake of rating fidelity to treatment and quality of instruction. Observers were educators and had attended the professional development sessions and had been trained by the Principal Investigator. They had had 5 to 8 years of experience observing in classrooms over the course of two previous federally funded longitudinal studies. They were blind to the assignment of specific sections to treatment and control conditions. However, the use of specific supplemental materials in the treatment sections made it possible for observers to reasonably infer assignment in so far as teachers effectively maintained treatment integrity across sections. Observers completed the fidelity/quality of instruction observation instrument twice on each section taught by each teacher. Thus, each teacher was observed a total of eight times for the sake of completing the fidelity/quality of instruction instrument, with an equal number of observations on each section. One observation per section was completed during the first 5 weeks of instruction and one observation was completed during the second 4 weeks of instruction. All observations completed for the sake of coding fidelity/quality were completed from Weeks 3 to 8 of the instruction. The weeks of observation varied across teacher but were completed during the same week for different sections taught by the same teacher. A total of five observers were used to complete observations. The pairing of observers with teachers and sections was generally a matter of convenience. For five of the teachers, all of their observations were completed by the same observer, whereas the other five teachers were observed by at least two different

observers over the duration of the study. Generally, individual observers completed observations on two or more teachers, with one individual observing sections taught by five different teachers.

Data analysis. Treatment effects were tested separately for science knowledge and vocabulary using analysis of covariance (ANCOVA), with the analogous pretest serving as the covariate. Analyses included fixed effects of treatment assignment and the covariate, and random effects for section and teacher. Treatment effects were tested at the level of the section, which was the unit of assignment. All models were fit in HLM 6.06 (Raudenbush, Bryk, & Congdon, 2008).

RESULTS

Tests of Treatment Effects on Outcomes for All Students

Table 3 contains descriptive statistics for student vocabulary and science assessments. The mean and standard deviation for the pretest and posttest are shown for treatment and control sections broken down by student language group (i.e., English proficient and ELLs). The information in Table 3 shows a similar pattern for both Science and Vocabulary, namely, minimal differences between treatment and control at the pretest for both English proficient students and ELL students, with all groups improving from pretest to posttest, and with larger absolute gains for students in the treatment sections. The analysis

Table 3. Descriptive statistics for vocabulary and science CBM assessments

Assessments and Language Group	Treatment Group	Pretest		Posttest		
		M	*SD*	*M*	*SD*	*N*
Vocabulary						
English proficient	Treatment	15.43	13.61	24.88	17.56	158
	Control	17.45	13.60	21.23	16.10	170
ELL	Treatment	8.41	9.14	15.22	14.23	266
	Control	9.24	9.62	12.22	12.59	296
Science						
English proficient	Treatment	9.36	4.00	14.06	7.42	158
	Control	9.93	4.51	13.88	7.10	170
ELL	Treatment	8.05	3.68	11.77	6.03	266
	Control	8.36	4.01	11.11	5.61	296

Note. CBM = curriculum-based measurement; LEP = Limited English proficient.

addresses whether this pattern of differential change for students in treatment and control sections is statistically and practically significant.

To examine the effects of treatment in this cluster-randomized trial, we fit separate three-level, multilevel ANCOVA models for the vocabulary and science outcomes, using the corresponding pretest as the covariate. We also examined evidence for treatment differences on the pretests using a three-level analysis of variance (ANOVA) model. In both the analysis of pretests and posttests, the levels of the model corresponded to students, sections, and teachers, with students nested within sections, and sections nested within teacher, and treatment assigned at the section level. Thus, the effects of treatment are tested within teacher and averaged across teachers. In this sense, treatment is a repeated, or "within-snbjects," factor when viewed from the teacher level and a "between-subjects" factor when viewed from the section level. The intercept was allowed to vary randomly at each level. We present the model in Equations 1.1 to 1.3, for Levels 1 to 3, respectively.

$$Y_{ijk} = \pi_{0jk} + \pi_1 \text{Pre\_Test}_{ijk} + \varepsilon_{ijk} \tag{1.10}$$

$$\pi_{0jk} = \beta_{00k} + \beta_{01} TX_{jk} + r_{0jk} \tag{1.20}$$

$$\pi_1 = \beta_{10} \tag{1.21}$$

$$\beta_{00k} = \gamma_{000} + u_{00k} \tag{1.30}$$

$$\beta_{01} = \gamma_{010} \tag{1.31}$$

$$\beta_{10} = \gamma_{100} \tag{1.32}$$

In Equation 1.10, Y_{ijk} is the outcome score (either Vocabulary or Science) for person i in section j taught by teacher k, Pre_Test_{ijk} is the corresponding pre-test score for the same student centered at the grand mean, π_{0jk} is the covariate-adjusted average outcome for section j taught by teacher k, π_1 is the regression coefficient relating the pretest to the posttest, and ε_{ijk} is error for person i in section j taught by teacher k.. Equation 1.20 indicates that the section average is a function of an average value (β_{00k}) plus an effect of the sections treatment assignment (β_{01}). The variable TX_{jk} is coded 0 for sections assigned to control and 1 for sections assigned to treatment. Thns, β_{00k} is the average for sections taught by teacher k and assigned to control, whereas β_{01} is the degree to which treatment sections differ from control sections. This amount is constrained to be equal across all teachers as evidenced by the omission of a teacher subscript from β_{01}. The final term in Equation 1.20, r_{0jk} is error and reflects the degree to which the mean of section j taught by teacher k is not equal to $\beta_{00k} + \beta_{01} TX_{jk}$. Equation 1.21 indicates that the effect of the pretest is the same for all sections and teachers. Equation 1.30 indicates that the average value for sections for teacher k are a function of an average value that is the same for all teachers, γ_{000}, plus an error component, u_{00k}. Eqnations 1.21,

1.31, and 1.32 simply indicate that the effect of the pretest and the effect of the treatment are fixed, that is, do not vary across levels.

We examined whether other factors in the design varied across section (viz., the effect of pretest), or teacher (viz., the effect of pretest and treatment) but tests of other random effects were not statistically significant. Consequently, we present the results from models that involved only the fixed effects for pretest and treatment.

After presenting results for the entire sample, we provide a subgroup analysis that focuses on the effects of treatment for ELL students only. Our decision to examine ELL students separately, rather than include ELL status as a second grouping variable in the model, and interact ELL status with treatment, hinges on the high degree of stratification of the ELL subgroup on the pretest covariate (see Francis & Vaughn, 2009). A separate examination of the impact of treatment for ELL students estimates the treatment impact at the mean of the pretest for ELL students, rather than at the overall pretest mean, which in this context falls above the bulk of the pretest distribution for ELL students. Thus, in this context, the separate analysis provides a more meaningful estimate of the treatment impact for ELL students. This issue is discussed in greater detail in Francis and Vaughn (in press).

Table 4 presents the random effects estimates for pretest and posttest measures for science and vocabulary. The table is organized to highlight models for the pretest measures separately from models for the posttest measures. For both pretest and posttest, we present the random effects estimates for unconditional models, which show the amount of variability in the measure that is attributable to students within sections, sections within teachers, and between teachers. We then show the reduction in variance at the pretest that is attributable to treatment. For the posttest, we have provided results for two-conditional models. The first model introduces the covariate (i.e., the pretest measure of vocabulary, or science), whereas the second model includes both the pretest covariate and treatment assignment.

Examination of Table 4 shows that most of the variability at the pretest is at the student level (88% in Science and 64% in Vocabulary) with the remainder divided relatively evenly between sections and teachers. The results in Table 4 also suggest that there is more overall variability in Vocabulary than in Science, although this difference must be interpreted with some caution in that the measures are not designed to be on a common scale in measuring the underlying abilities.

Not surprisingly, given the random assignment of sections to treatment and control conditions and the relatively large number of sections that were assigned, the three-level ANOVA for pretest treatment differences (see Table 3 for pretest means) showed no statistically significant differences between treatment and control for vocabulary, $t(38) = -0.34$, $p = .73$, or science, $t(38) = -1.11$, $p = .27$. Recall that students were also pretested on the GRADE vocabulary and reading comprehension subtests. No significant differences

Table 4. Results of multilevel analysis of variance of pretest measures and multilevel analysis of covariance for posttest measures.

			Science				Vocabulary			
Model	Time Point	Random Effect	Estimate	χ^2 (*df*)	*p*	ICC[a]	Estimate	χ^2 (*df*)	*p*	ICC[a]
Unconditional	Pretest	Teachers	1.2	42.0 (9)	<.0001	0.07	28.3	54.4 (9)	<.0001	0.21
		Sections	0.74	61.7 (30)	.001	0.05	21.0	190.4 (30)	<.0001	0.15
		Students	14.3			0.88	88.0			0.64
Treatment[b]	Pretest	Teachers	1.2	43.2 (9)	<.0001	0.07	28.3	54.4 (9)	<.0001	0.21
		Sections	0.70	59.9 (29)	.001	0.04	21.0	189.8 (29)	<.0001	0.15
		Students	14.3			0.88	88.0			0.64
Unconditional	Posttest	Teachers	6.6	49.8 (9)	<.0001	0.16	36.9	38.9 (9)	<.0001	0.15
		Sections	5.2	146.4 (30)	<.0001	0.13	43.1	203.3 (30)	<.0001	0.18
		Students	29.5			0.71	160.0			0.67
Covariate only	Posttest	Teachers	4.0	44.6 (9)	<.0001	0.13	0.02	9.8 (9)	.365	0.00
		Sections	3.5	127.5 (30)	<.0001	0.12	10.4	133.2 (30)	<.0001	0.14
		Students	22.9			0.75	62.1			0.86
Covariate plus treatment	Posttest	Teachers	4.1	48.0 (9)	<.0001	0.14	1.4	17.0 (9)	.048	0.02
		Sections	3.2	119.0 (29)	<.0001	0.11	4.8	76.5 (29)	<.0001	0.07
		Students	22.8			0.76	62.1			0.91

Note. ICC (Intraclass correlation) = XX.

[a]Fixed effects for treatment on pretest measures were nonsignificant for both Science and Vocabulary. [b]ICC gives the proportion of the total variance that resides at a given level in a particular model. Percentages may not sum to 1.0 because of rounding.

were observed on these measures, either. Using a three-level mixed model to estimate the pretest means for treatment and control, for Comprehension, the model estimated control group mean was 36.5 with a standard error of 2.6, and the treatment group mean was 35.3 with a standard error of 2.6, $t(29) = 0.48$, $p = .6359$. Similarly, for Vocabulary, the control group model estimated mean was 37.18 with a standard error of 2.7 and the treatment mean was 37.15 with a standard error of 2.7, $t(29) = 0.01$, $p = .9885$.

The role of the pretest in explaining posttest outcomes is evidenced by the statistically significant fixed effect for the pretest for both Science ($\beta = 0.70$, $SE = .045$), $t(824) = 15.7$, $p < .0001$, and Vocabulary ($\beta = 1.07$, $SE = .03$), $t(824) = 38.3$, $p < .0001$, in the conditional model that introduces the covariate. Most important, tests of the treatment fixed effect in the conditional models are also significant for Vocabulary. Results for Science are mixed in so far as the effect is smaller and is not statistically significant when judged against the model based standard error but is statistically significant when judged against the robust standard error. For Science, the coefficient for treatment was $\beta = 0.95$ ($SE = .66$), $t(38) = 1.45$, $p = .155$ (robust $SE = .43$), $t(38) = 2.20$, $p = .034$, indicating that students in treatment sections scored on average roughly 1 point higher on the posttest than students in control sections. This covariate adjusted difference translates into an effect size estimate of .148 using Hedges' g, based on a pooled within groups standard deviation computed from the descriptive statistics for the posttest reported in Table 3. To compnte g, we computed the difference in the overall posttest mean for treatment and control as measured by the regression coefficient for treatment ($\beta = 0.95$) and divided this difference by the pooled within-groups standard deviation at the pretest: $s_{\text{pooled}} = (158—1) \times 7.42^2 + (266-1) \times 6.03^2 + (170-1) \times 7,10^2 + (296-1) \times 5.61^2 / (158 + 266 + 170 + 296—4)^{1/2} = 6.38$. The unadjusted posttest mean difference of .50—Treatment $M = (158 \times 14.06 + 266 \times 11.77)/(158 + 266) = 12.62$; Control $M = (170 \times 13.88 + 296 \times 11.11) / (170 + 296) = 12.12$; difference = 0.50—based on the descriptive statistics for Science in Table 3 corresponds to an effect size g of .079. For Vocabulary, the treatment was somewhat more effective and the conclusion clearer, as evidenced by the coefficient for treatment ($\beta = 4.11$, $SE = .89$), $t(38) = 4.63$, $p < .0001$ (robust $SE = .80$), $t(38) = 5.13$, $p < .0001$, and the corresponding covariate adjusted effect size estimate of $g = .279$, based on a pooled within-groups standard deviation computed from the descriptive statistics in Table 3. The corresponding unadjusted effect size estimate was $d = .225$ computed from the unadjusted posttest means in Table 3. Effect sizes are somewhat larger for both Science and Vocabulary if the pooled-within groups standard deviation at the pretest is used, reflecting the overall reduced variability at the pretest for both outcomes. Specifically, the unadjusted and adjusted Hedges' g for Science are .125 and .237, respectively. The corresponding values for Vocabulary are .298 and .369, respectively. We do not provide the estimates corrected for bias due to small sample size because the correction factor computes to .999 in

this case, indicating that the corrected and uncorrected estimates are virtually identical.

As can be seen from these results, the conclusion as to whether the result for Science is statistically different from zero depends on whether robust or model based standard errors are used. In this instance, the robust standard error is approximately one third smaller than the model-based standard error. In the case of Vocabulary, the difference in the two standard errors is substantially smaller, although both standard errors are somewhat larger for Vocabulary than for Science. Raudenbush and Bryk (2002) suggested that large discrepancies between model-based and robust standard errors can signify model misspecification, such as slope heterogeneity that is unmodeled. We considered this possibility and examined a model that allowed for variance in treatment effects across teachers for the Science outcome, but the results were virtually identical to the aforementioned results, including the magnitudes of the model-based and robust standard errors. However, in this case, the t ratio of 2.2 based on a robust standard error of .43 for Treatment was associated with a p value of .055, because the test was based on 9 rather than 38 degrees of freedom. Of importance, the test of significance for variance in treatment effects was nonsignificant, with a p value greater than .5, indicating little support for the idea that treatment effects differed across the 10 teachers.

To further examine the potential effect of the QuEST intervention on Science outcomes, we conducted additional analyses of treatment and control differences. Specifically, we conducted two additional analyses at the teacher level. The first analysis examined treatment and control differences at the teacher level using a repeated measures ANOVA on teacher-level means. In this analysis, we first computed the difference between pretest and posttest scores for each student in each section. We then computed the average difference between pretest and posttest for each section for each teacher, and then averaged the mean differences for the two treatment sections and two control sections for each teacher. This process resulted in two scores for each teacher, specifically the mean difference between pretest and posttest for treatment and the mean difference between pretest and posttest for control. These two scores then comprised the raw data for a repeated measures ANOVA to test the effect of treatment on gains in science knowledge. This analysis would generally not be preferred over the three-level HLM ANCOVA analysis because it ignores differences in the precision in the section means. Also, the three-level HLM ANCOVA would generally be preferred because the repeated measures analysis uses the difference between pretest and posttest for each student rather than using the pretest as a covariate, in essence assuming a regression weight of 1.0 for the pretest.

Although the repeated measures ANOVA has these shortcomings in comparison to the three-level HLM ANCOVA, it nevertheless provides a legitimate test of treatment effects on pre–post differences. In this case, the pre–post difference was slightly larger for teachers' treatment sections than for their

control sections (Treatment: M Pre–Post Difference = 4.22, SD = 2.15; Control: M Pre–Post Difference = 3.17, SD = 2.36), with a substantial correlation in treatment and control means across teachers (r = .823, p < .0035). This difference between treatment and control sections was statistically significant, $F(1, 9) = 5.93$, $p < .0376$, corroborating the results of the three-level HLM ANCOVA based on the robust standard errors.

In addition to this repeated measures ANOVA, we conducted a fully nonparametric analysis of the 10 pairs of pre–post mean differences using the Wilcoxon signed-rank test for dependent samples. Examining the individual teacher means, we find that 8 of 10 teachers had pre–post differences that favored their treatment sections (M rank = 6.0) and 2 of 10 teachers had pre–post differences that favored their control sections (M rank = 3.5), resulting in a statistically significant Wilcoxon signed rank test (Z = 2.02, p = .037). Thus, given the three-level HLM ANCOVA results and these two additional analyses, we conclude that there is a small difference in the magnitude of changes from pretest to posttest for the Science outcome that favors the treatment condition.

Treatment Effects for ELL Students

The models whose results are presented in Table 4 and in the foregoing paragraphs did not include student language group as a student-level covariate. Rather, they simply looked at the effect of treatment on all students. However, because the treatment was designed specifically to address the needs of ELL students, it is important to assess the impact of treatment on ELL students specifically and to ensure that the treatment is not deleterious to the learning of students who are native speakers of English. Although we would argue that the treatment is based on components of effective instruction and thus should benefit all learners, and not just ELL students, it is important to consider whether the treatment has, in fact, addressed the needs of the ELL students in these science classrooms.

Table 5 provides estimates of random and fixed effects from the three-level ANCOVA model for treatment effects when the analysis is restricted to the ELL students in each section. It can be seen from the fixed effects results in the top half of Table 5 that the covariate exerts a somewhat weaker influence when the analysis is restricted to the ELL students, although the effect remains statistically significant. Most important, students in treatment sections continue to outperform students in the control sections as evidenced by the statistically significant effect for treatment in the models for both Science and Vocabulary. The coefficients for treatment in Table 5 coincide with effect size estimates for the covariate adjusted means of g = .163 for Science and g = .263 for Vocabulary using the pooled within groups standard deviation at the posttest for the ELL students. When the pooled within groups standard deviation at the pretest for the ELL students is used in the denominator, the effect size

Table 5. Three-level mixed model results showing effects of treatment for English language learner students

	Vocabulary				Science			
Fixed effects	Coefficient	*SE*	*t* (*df*)	*p*	Coefficient	*SE*	*t* (*df*)	*p*
Intercept	12.02	.60	20.1(9)	<.001	11.35	.67	17.0(9)	<.001
Pretest	1.16	.04	25.7(518)	<.001	0.67	.06	10.4(522)	<.001
Treatment	3.52	.98	3.6(38)	.001	0.95	.33	2.8(38)	.008
Random effects	Variance	*SD*	χ^2 (*df*)	*p*	Variance	*SD*	χ^2 (*df*)	*p*
Teacher	0.27	.52	10.9(9)	.282	3.56	1.89	49.4(9)	<.001
Section	3.54	1.88	53.4(29)	.004	1.74	1.32	64.2(29)	<.001
Residual	51.26	7.16			20.48	4.52		

Note. Results from two separate models are shown in the table, one for vocabulary and one for science. The model is a three-level analysis of covariance, with pretest as a covariate. The pretest was centered at the grand mean. Fixed effects for treatment for both science and vocabulary were nonsignificant at the pretest.

estimates are $g = .276$ and $g = .345$ for Science and Vocabulary, respectively. With sample sizes of 296 and 266 for the ELL students in Treatment and Control, the correction for bias due to small samples computes to .998. Thus, we again report only the uncorrected effect size estimates in so far as they are virtually identical to the corrected values.

The random effects for vocabulary in Table 5 show that, conditional on the other predictors in the model, teachers did not vary significantly from each other when the analysis was restricted to ELL students. Sections continue to differ from one another, with an estimated standard deviation of 1.88. The residual standard deviation of 7.16 shows that ELL students differ from one another within sections after taking into account pretest vocabulary performance and treatment assignment. The random effects for science show that teachers varied significantly from one another (variance estimate = 3.56, $SD = 1.89$), $\chi^2(9) = 49.4$, $p < .001$, as did sections (variance estimate = 1.74, $SD = 1.32$), $\chi^2(29) = 64.2$, $p < .001$. Differences between ELL students within sections were less for Science than for Vocabulary. These results indicate significant variability at all levels in science.

Fidelity and Quality of Instruction

Each teacher was observed teaching each treatment and control section on two occasions, resulting in 80 fidelity observations, equally distributed across sections and teachers. The average fidelity scores (i.e., the mean of the 8 fidelity items for a given teacher teaching a given section on a particular occasion) were analyzed using a mixed model with repeated measures reflecting the two waves of observation for each section. The model included random effects for teacher and section within teacher. Although average fidelity ratings indicated relatively weak fidelity of implementation (Treatment $M = 2.2$, $SE = 0.20$; Control $M = 1.6$, $SE = 0.20$), the difference between Treatment and Control sections was statistically significant, $F(1, 67) = 23.6$, $p < .0001$. Fidelity also improved significantly, $F(1, 67) = 10.9$, $p < .0016$, from the first occasion of measurement ($M = 1.7$, $SE = 0.20$) to the second occasion of measurement ($M = 2.1$, $SE = 0.20$). The improvement in fidelity across the two waves of observation was comparable between treatment and control sections. An examination of random effects showed significant variability in mean fidelity ratings across teachers (Estimated Variance due to Teachers = 0.335, $SE = 0.17$, $Z = 1.92$, $p < .0273$), and across sections within teachers (Estimated Variance due to Sections within Teachers = 0.276, $SE = 0.05$, $Z = 5.79$, $p < .0001$).

In contrast to average fidelity ratings, control and treatment sections did not differ in average quality ratings, and these ratings did not change across the two occasions of measurement. There was also no significant interaction between treatment assignment and occasion of measurement. There was, nevertheless,

significant variability across teachers and sections in the mean quality ratings. (Estimated Variance due to Teachers = 0.615, SE = 0.30, Z = 2.07, p < .0192; Estimated Variance due to Sections within Teachers = 0.123, SE = 0.02, Z = 5.79, p < .0001). In this case, 83% of the variance was at the teacher level, as compared to 54% of the variability in fidelity ratings. That is teachers differed from one another more in the quality of their instruction than in their fidelity to treatment, whereas fidelity varied more across sections within teachers compared to quality. These results for the random effects make sense in so far as they suggest that the quality of instruction varied more by teacher, whereas fidelity to treatment varied across sections, which should be expected in so far as treatment was implemented in some sections and not in others.

DISCUSSION

Student Outcomes

On average, the QuEST intervention produced positive gains in performance for students, regardless of their status as ELLs or native speakers of English. In addition, the QuEST intervention produced positive effects for both Science and Vocabulary outcomes for students as reflected in the curriculum-based measures, which reflected the material being taught in both the treatment and control sections. Standardized effect sizes for the covariate adjusted means were in the small to moderate range for Science (g = .15–.24) for the entire sample, as well as for the ELL students when examined separately (g = .16–.25), depending on whether pretest or posttest standard deviation is used as the baseline for the effect size computation. Results for vocabulary were somewhat more favorable, but still in this same general range, although more toward the moderate end (g = .28–.37) for the entire sample, and for the ELL students alone (g = .26–.37). To put these effect sizes in perspective, at g = .25, if schools could achieve this return for each of the 3 years of middle school, the net effect over 3 years would be a gain of .95 standard deviation units (1.25^3), or almost 1 full standard deviation of improvement over treatment as usual. These gains would be added to the annual gains due to instruction, which in the present study produced gains of only .27 standard deviations for Vocabulary for native speakers of English, and gains of .75 standard deviation units for Vocabulary for ELL students. Annual Science gains were somewhat larger, namely, .88 standard deviation units for native speakers of English, and 1.01 standard deviation units for ELL students. These gains are estimated from the change observed in students in the control sections relative to the pretest standard deviation. Thus, treatment gains in Vocabulary from 3 years of QuEST would be roughly double what native speakers of English would be expected to gain over that same time frame in traditional instruction, whereas

ELL students would gain better than 4 years of vocabulary growth in 3 years. Both native speakers of English and ELL students would gain in 3 years what might have been expected over 4 years of traditional instruction. These estimates of gain assume only that the effect size of .25 could be maintained in each of the 3 years of Middle School instruction. That is, they assume no compounding of content are or vocabulary knowledge as students acquire more knowledge. In so far as effect sizes for QuEST were comparable for ELL and native English speakers, this assumption appears reasonable for the time being, although one could easily argue that gains in language should lead to a compounding of effects on the acquisition of other language skills. If the QuEST strategies could be adapted to other content areas with similar efficacy, one could obviously expect a compounding effect with respect to content area knowledge and vocabulary gains in so far as effects would be observed across multiple domains of knowledge acquisition, and words learned in one content area that have general purpose utility, would obviously transfer to other content areas and not need to be relearned in that other context. Whether such gains are possible and could be obtained across multiple content areas is a matter of speculation at this point. However, it seems clear, that gains of .25 standard deviations, if sustainable year over year, can result in a substantial shift in the achievement and language distributions for both ELL students and students who are native speakers of English.

Teacher Differences

Treating the measures of fidelity and instructional quality as outcomes, teachers on average were rated as being more faithful to the QuEST curriculum in their QuEST sections than in their district-based curriculum control sections, as expected. Although the current sample only involves 10 teachers, teachers served as their own controls, teaching two sections in QuEST and two sections in the district curriculum. Moreover, teachers' implementation ratings improved from the first occasion of measurement to the second. Nevertheless, teachers did not achieve a high degree of implementation, with average ratings falling between fair and good. Measures of quality of instruction did not differ between treatment and control sections, suggesting that the differences in student outcomes are not attributable to better overall quality of instruction in the QuEST sections but because of the specific instructional activities in the program. We tested this treatment effect allowing for the nesting of the 40 sections in the 10 teachers, so these results suggest it is likely that the QuEST curriculum activities focuses teachers' instructional attention on behaviors that lead to improved student outcomes and do not simply improve the general quality of instruction. Of importance, there was substantial variability in the fidelity of implementation across teachers, but less so than in the general quality of instruction.

This significant variance across teachers in overall instructional quality, which varied more between teachers than between sections within teachers, highlights the value in designing the study such that each teacher served as their own control. Teachers also differed in their fidelity to the treatment, but the study lacked power to examine differences between teachers in the magnitude of the treatment effect on student outcomes. Improving the precision of our estimate of the variance in the treatment effect across teachers would require a greater number of sections per teacher, and/or an increase in the number of teachers in the study.

Teacher Professional Development

Providing additional professional development for teachers to help them become familiar with QuEST might have resulted in better implementation of the curriculum by some of the teachers. Teachers had to learn to how to conduct the hands-on activities prior to implementing these activities with students and additional time would have enabled them to master these activities as well as become more familiar with the scope and sequence of the curriculum. However, there were other factors not related to science curriculum that made for uneven implementation. Four of the 10 teachers were new to teaching and would have benefitted from additional assistance in managing their classrooms, a type of professional development and mentoring that was outside of the scope of the current study but certainly necessary to ensure that the intervention curriculum could be effectively implemented. In addition, although principals were generally supportive of the intervention, they did not consider it their responsibility nor were they prepared by the researchers to ensure that teachers fully implemented the curriculum. These shortcomings were addressed in a follow-up study in the same district.

Limitations

The instructional quality measures were ordinal scales. Although the psychometric properties of these scales were clearly acceptable, the sample was too limited to consider more advanced psychometric models for the measurement of instructional quality. With a larger sample of teachers, improving the quality of the measurement of teachers' instruction could provide insights into the factors relating to differences across teachers in the impact of the QuEST program. The present study, although adequately powered for detecting differences between sections taught using the QuEST curriculum and those using traditional instruction, was clearly not designed with the intent to understand, or even estimate with substantial precision, the factors that relate to variability

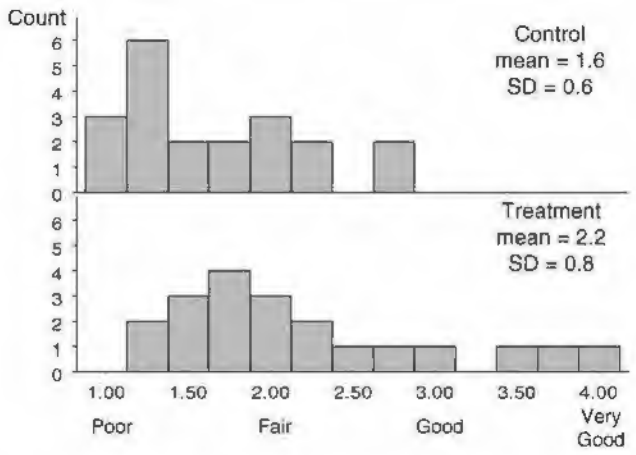

Figure 1. Histograms for Quality of Instruction × Treatment Group. *Note.* The vertical axis represents the number of classroom sections given that rating of quality of instruction. Control sections appear on top, treatment appear below.

in treatment efficacy. Clearly, any attempt to scale up the delivery of the QuEST intervention to more teachers across one or more districts would benefit from a firm understanding of the factors that affect treatment efficacy across teachers, so that professional development could be designed, or the intervention modified to help ensure that all teachers can achieve comparable gains using this curriculum. In crafting better professional development it would be essential to collect information about teacher qualifications, including education, preparation for teaching, science knowledge, and knowledge of best methods for educating children in diverse classrooms including those with varying levels of science background and English proficiency.

It is possible that with a larger sample, factors relating to teacher variability in efficacy could be investigated and better understood. That is, although we tested treatment heterogeneity across teachers, it is also possible that teachers can be differentially effective implementing the curriculum with different kinds of children: Some teachers may be better suited for intervening with English-language learners, whereas other teachers might be better suited for intervening with native English speakers. Although we could not investigate treatment differences across teachers or differences in treatment effects for ELL as compared to native English speakers across teachers, investigation of such variability in future studies could prove enlightening. Such variation will not only help to diagnose fidelity and implementation problems but may help to better target the validity strengths and challenges of our interventions, especially as we prepare to take the interventions to scale.

CONCLUSION

Overall, it appears that the implementation of QuEST improves the quality of teachers' science instruction and raises student performance on curriculum based measures of Vocabulary and Science. Project QuEST differed from the practices in the control classrooms by making alterations to accommodate the needs of ELLs and build on their strengths. Consistent with the literature, the content was made clear to students through the use of visuals, modeling, and ongoing discussion. In addition, students' English oral proficiency was developed in the context of science instruction through explicit vocabulary instruction, guided reading, and partnering with classmates who were more English proficient.

There was substantial variability across teachers in the rated quality of their instruction, highlighting the importance of preparation, professional development, and mentoring in ensuring curriculum is well implemented. This variation also implies a potential limitation on power for teacher-level randomized trials: many more teachers are needed (Konstantopoulos, 2008; Raudenbush, Martínez, & Spybrook, 2007). The present study avoided this problem to some extent by randomizing within teacher at the section level, thus, controlling variability due to teachers that might operate in a consistent fashion across all sections taught by a teacher. Just as within-subjects designs offer power advantages over between-subjects designs, the present study improved on the power of a teacher-level randomized design with the same number of teachers by making treatment a within-subject (i.e., within-teacher) factor.

Project QuEST makes an important contribution to the field in that there is very little research that explores whether enhancements to traditional practices are necessary or improve the traditional versions, and important, whether modifications to traditional practices to make them more effective with English-language learners also make them more effective with monolingual English students. To be optimal, ESOL-enhanced instructional practices must enhance the learning of ELLs in the classroom *and* must be no less effective than traditional methods of instruction for monolingual English students. Because ELL students are often placed in classrooms with native speakers of English it is critical that the development of instructional methods to specifically benefit the ELL students in mixed classrooms cannot disadvantage those students in the same classrooms who are not identified as ELL students. The present study of QuEST shows that such instructional improvements are not merely theoretically possible, they can be achieved in real school settings with actual middle school science teachers. Although much work remains to be done, to our knowledge this study represents the first such demonstration in a randomized controlled experiment that gains in content area knowledge in Science and gains in Vocabulary are possible for both ELL and English proficient students using a common approach to instruction that is designed to be optimal for the

ELL students. Of all research published between 1982 and 2009 in English in settings where English is the main medium of science instruction in elementary and secondary schools this is only published experimental study we know of that has found significant intervention effects for both ELLs and English proficient students in science knowledge and science vocabulary.

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Unit: Cells (Living Systems and Environment) 5 weeks

TEKS	6.10b,c
Readings in Science Explorer	Pages 122–147 and 280–282
Other readings	none
Lab activities	**Week 1**: Living/nonliving item sort Pulse rate homeostasis activity Please pass the bread (Sci Explorer) 6 Traits of Living things illustration **Week 2**: Cell observation Microscope invention timeline Creating a simple hand lens Illustrate the cell theory **Week 3:** Labeling the microscope Using the microscope: the letter e Finding the magnification **Week 4:** Cell Diagrams, Magnified view of Life, Levels of organization- cells to population **Week 5:** Food Chains and final analysis of Decomposition Lab
Language integration	strategies; comprehension strategies, writing Guided reading; academic and discipline vocabulary; word-learning
Technical and Academic vocabulary	**Week 1**: despite, design, evidence, convince, chemical, organism, cell, unicellular, multicellular, homeostasis, stimulus, response **Week 2:** compound, conclude, function, focus, structure, microscope, matter, theory, invention **Week 3**: create, image, obtain, occur, process, magnification, microscope, resolution and the parts of the microscope. **Week 4**: organelle, cell wall, cell membrane, nucleus, ribosome, cytoplasm, mitochondria, endoplasmic reticulum, Golgi body, chloroplast, vacuole, lysosome, prokaryotes, eukaryotes **Week 5:** tissue, organ, system, population, respond, survive, transport, external, producer, consumer, decomposer

Unit: Cell Processes (Living Systems and Environment) 2 weeks

TEKS	6.10b
Readings in Science Explorer	Pages 158–168
Other readings	
Lab activities	**Week 1**: Eggsperiment with a Cell (Science Explorer) Osmosis, Diffusion and Active transport simulations and demonstrations **Week 2**: Respiration Lab (Lab-AIDS) Is yeast alive? (Sci Explorer) Diagramming photosynthesis
Language integration	Guided reading; academic and discipline vocabulary; word-learning strategies; comprehension strategies, writing
Technical and Academic vocabulary	**Week 1:** concentrated, selectively, permeable, diffusion, osmosis, active transport, passive transport, molecules, dilute **Week 2**: equation, converted, combine, photosynthesis, chlorophyll, glucose, cellular respiration

Unit: Cell Cycle and Introduction to Genetics (Living Systems and Environment)3 weeks

TEKS	6.11a,b,c
Readings in Science Explorer	Pages 170–177 and 260–263, 149–152
Other readings	none
Lab activities	**Week 1**: Making a DNA model, DNA replication simulation, Yeast budding observation and root tip observation **Week 2**: Selective breeding activity **Week 3**: Genetics with a Smile, Skittles lab (optional)
Language integration	Guided reading; academic and discipline vocabulary; word-learning strategies; comprehension strategies, writing
Technical and Academic vocabulary	**Week 1:** interphase, cytokinesis, DNA, sequence, key, duplicate, cycle, reveal, element, alternating **Week 2**: offspring, traits, heredity, gene, asexual reproduction, sexual reproduction, selective breeding, inherit, technique, **Week 3:** genotype, phenotype, dominant, recessive, composed, resistant, originate, generation, consists

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Closing the gap: Addressing the vocabulary needs of English-language learners in bilingual and mainstream classrooms

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The existence of a large and persistent gap between the reading performance of Anglo and Latino children on national assessments in the United States (Donahue, Finnegan, Lutkus, Allen, & Campbell, 2001) represents both an intellectual and a practical challenge. Practically, gaining access to the information taught in middle and secondary content area classes requires that all children exit the elementary

Closing the gap: Addressing the vocabulary needs of English-language learners in bilingual and mainstream classrooms

GAPS IN reading performance between Anglo and Latino children are associated with gaps in vocabulary knowledge. An intervention was designed to enhance fifth graders' academic vocabulary. The meanings of academically useful words were taught together with strategies for using information from context, from morphology, from knowledge about multiple meanings, and from cognates to infer word meaning. Among the principles underlying the intervention were that new words should be encountered in meaningful text, that native Spanish speakers should have access to the text's meaning through Spanish, that words should be encountered in varying contexts, and that word knowledge involves spelling, pronunciation, morphology, and syntax as well as depth of meaning. Fifth graders in the intervention group showed greater growth than the comparison group on knowledge of the words taught, on depth of vocabulary knowledge, on understanding multiple meanings, and on reading comprehension. The intervention effects were as large for the English-language learners (ELLs) as for the English-only speakers (EOs), though the ELLs scored lower on all pre- and posttest measures. The results show the feasibility of improving comprehension outcomes for students in mixed ELL–EO classes, by teaching word analysis and vocabulary learning strategies.

Cerrando la brecha: Acerca de las necesidades de vocabulario de aprendices de inglés en aulas bilingües y comunes

LAS DIFERENCIAS en el desempeño lector entre niños angloamericanos y latinos se asocian a brechas en el conocimiento del vocabulario. Se diseñó una intervención para mejorar el vocabulario académico de niños de quinto grado. Se enseñaron los significados de palabras académicamente útiles, junto con estrategias para usar información del contexto, de la morfología, del conocimiento de significados múltiples y de palabras emparentadas para inferir los significados. Entre los principios subyacentes a la intervención se propuso que las palabras nuevas debían encontrarse en textos significativos, que los hablantes nativos de español debían tener acceso al significado del texto a través de su lengua, que las palabras debían aparecer en contextos variados y que el conocimiento de las palabras incluye ortografía, pronunciación, morfología y sintaxis, así como significado en profundidad. Los niños de quinto grado del grupo de intervención mostraron un mayor crecimiento que el grupo de comparación en: conocimiento de las palabras enseñadas, profundidad de conocimiento del vocabulario, comprensión de significados múltiples y comprensión lectora. Los efectos de la intervención fueron tan grandes para los aprendices de inglés (ELL), como para los hablantes nativos de inglés (EO), aunque el grupo ELL obtuvo puntajes inferiores en todas las medidas pre y post test. Los resultados muestran la factibilidad de mejorar la comprensión de estudiantes en aulas mixtas ELL–EO, mediante la enseñanza de análisis de las palabras y estrategias de aprendizaje del vocabulario.

Schließen der Lücke: Ansprechen des Wortschatzbedarfs von Anfängern in der englischen Sprache in bi-lingualen und allgemeinen Klassenzimmern

LÜCKEN BEI der Leseleistung zwischen Anglo- und Latino-Kindern werden mit Wissenlücken im Wortschatz assoziiert. Ein Einwirken wurde darauf ausgerichtet, den so geschulten Wortschatz bei Schülern der fünften Klasse zu verbessern. Die Bedeutungen von theoretisch-akademisch dienlichen Wörtern wurden zusammen mit Strategien über die Anwendung von Informationen aus dem Textinhalt, der Morphologie, dem Wissen um die vielfältige Sinndeutung, und den Kognaten zum Ableiten der Wortbedeutung unterricht. Unter den der Intervention zugrundeliegenden Prinzipien galt es, daß neue Wörter innerhalb eines sinnverdeutlichenden Textes in Angriff genommen werden sollten, so daß die als Muttersprache spanisch Sprechenden Zugang zu Sinn und Bedeutung des Textes in spanisch haben sollten, daß Wörter in variierenden Kontexten angewandt werden sollten und daß die Wortbeherrschung, das Buchstabieren, die Aussprache, Morphologie und Syntax, sowie die tieferen Bedeutungen mit einbezogen sind. Fünftklässler in der Interventionensgruppe zeigten größere Fortschritte als ihre Vergleichsgruppe in Kenntnissen der unterrichteten Wörter, in der Gründlichkeit ihrer Vokabelbeherrschung, beim Erfassen von Vieldeutigkeiten, und ihrem Leseverständnis. Die Interventionsauswirkungen waren ebenso weitreichend bei Anfängern in der englischen Sprache (ELL) wie bei originär-englischen Muttersprachlern (EO), wobei jedoch die ELL-Werte bei allen Vor- und Nachtests geringer ausfielen. Die Resultate zeigten deutlich Möglichkeiten im Verbessern der Ergebnisse für Schüler in gemischten ELL–EO-Klassen auf, sowie beim Unterrichten von Wordanalyse und Vokabel-Lernstrategien.

Réduire l'écart : intervenir sur les besoins en vocabulaire anglais d'apprenants de classes bilingues et de classes d'intégration

LES ÉCARTS de réussite en lecture entre élèves anglophones et hispanophones vont de pair avec des écarts dans leur connaissance du vocabulaire. On a planifié une intervention en vue de développer le vocabulaire scolaire d'élèves de cinquième année. On a enseigné le sens de mots utiles dans le cadre scolaire en même temps que des stratégies pour utiliser l'information apportée par le contexte, la morphologie, la pluralité des sens et l'origine afin d'inférer le sens des mots. Un des principes sous-tendant l'intervention était que les mots nouveaux devaient être rencontrés dans un contexte signifiant, que les enfants de langue espagnole devaient avoir accès au sens du texte en passant par l'espagnol, et que la connaissance d'un mot implique l'orthographe, la prononciation, la morphologie et la syntaxe tout comme son sens profond. Les élèves de cinquième année du groupe d'intervention ont réalisé plus de progrès que ceux du groupe témoin en ce qui concerne la connaissance des mots enseignés, la connaissance profonde du vocabulaire, la compréhension de la pluralité des sens et la compréhension de la lecture. Les effets de l'intervention ont été aussi importants pour les élèves ayant l'anglais pour langue 2 que pour ceux dont c'est la langue maternelle, bien que les résultats des premiers aient été plus faibles à tous les tests, avant et après l'intervention. Les résultats montrent qu'il est possible d'améliorer les résultats en lecture des élèves dans des classes mixtes (anglais langue maternelle ou langue 2), en leur enseignant des stratégies d'analyse des mots et d'apprentissage du vocabulaire.

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grades with good reading comprehension capacity. Without this capacity, access to grade-appropriate content knowledge, entry into challenging courses in secondary school, success on the tests increasingly being required for promotion and graduation, and entry into tertiary education are all unlikely. Thus, closing this gap has high priority if U.S. education is to fulfill its goal of reducing inequities in access to economic opportunities that are contingent upon successful school achievement. Yet as recently as 2000 García noted that "few researchers have developed programs to improve students' second-language reading vocabulary" (p. 826).

The intellectual challenge posed by the gap involves isolating its root cause. The problem is one of too many rather than too few likely explanations. Considerable previous work suggests that one major determinant of poor reading comprehension, for Latino children (García, 1991; Nagy, 1997; Verhoeven, 1990) and for other lagging readers (National Institute of Child Health and Human Development, 2000), is low vocabulary. Lack of knowledge of the middle- and lower frequency "academic" words encountered in middle and secondary school texts impedes comprehension of those texts, which in turn impedes the natural process of learning new word meanings from exposure during reading (Stanovich, 1986). It is widely known that vocabulary relates to reading comprehension scores (Freebody & Anderson, 1983), and the presumption is that the effect is reciprocal—greater vocabulary knowledge makes comprehension easier, while wider reading generates larger vocabularies. One goal of the current study was to test whether improvements in vocabulary related to improvements in reading comprehension for English-language learners (ELLs).

Review of literature on vocabulary instruction and learning

Attempts to address the practical challenge of improving reading comprehension by explicitly teaching vocabulary have met with mixed success (Stahl & Fairbanks, 1986), in part because of the difficulty of generating a large instructional impact on vocabulary knowledge. Successful vocabulary curricula increase children's word knowledge by approximately 300 words a year (Stahl & Fairbanks). While such gains are not unimportant, they are hardly sufficient to close the gap between the vocabulary skills of lower socioeconomic status (SES) and middle SES children, which is estimated to be as high as 6,000 words at school entry (Hart & Risley, 1995). Addressing the vocabulary deficits of second-language learners, who may arrive in U.S. classrooms in second or third grade with no English vocabulary at all, is even more challenging. While such children may appear to acquire oral English vocabulary quickly, they can remain well behind children who have been exposed to oral and literate English since birth, unless provided with skills and strategies for rapid learning of the words they will encounter in their reading—words that may be used rarely in spoken language.

For avid readers, much vocabulary acquisition occurs incidentally as a result of encountering unfamiliar words while reading (Sternberg, 1987). Nonetheless, the probability of acquiring an unknown word incidentally through reading is only about 15% (Swanborn & de Glopper, 1999), which means the word would need to be encountered eight times to be learned with high probability. The probability of learning any word at a first encounter is lower for younger readers, for more difficult texts, and probably for students who have had no training in deriving meanings for unknown words (Fukkink & de Glopper, 1998; Kuhn & Stahl, 1998). Thus, incidental vocabulary learning is not a reliable procedure for promoting vocabulary growth.

Relying on incidental vocabulary learning is even more problematic for ELLs than for their English-only (EO) counterparts. ELLs are less able to use context to disambiguate the meaning of unfamiliar words because a higher proportion of words in text is likely to be unknown to them. Furthermore, because they lack full command of the English grammar, they are less able to exploit linguistic cues to word meaning as an EO speaker could (Stoller & Grabe, 1995). Reading texts in which more than 2% of the words are unfamiliar blocks comprehension and novel word learning (Carver, 1994). As is suggested in many of the chapters in Huckin, Haynes, and Coady (1995), which explore the relationship between reading and vocabulary development in a second language, vocabulary instruction for ELLs would ideally combine direct teaching of words with incidental learning fostered by multiple opportunities to encounter novel words in authentic and motivating texts.

In addition to direct instruction and incidental learning, evidence suggests the desirability of enhancing the value of incidental exposure by teaching ELLs strategies for inferring the meanings of newly encountered, unfamiliar words. Many such strategies exist and are used with ease by high-level readers. They include using contextual cues, morphological information, and cognate knowledge, as well as

using aids such as dictionaries and glossaries (García & Nagy, 1993; Jiménez, García, & Pearson, 1996; Nagy, García, Durgunoglu, & Hancin-Bhatt, 1993; Nation, 2001). Beck, McKeown, and Omanson (1987) demonstrated that it was possible to teach EO children the use of strategies for inferring word meaning, while at the same time enriching vocabularies with direct teaching. Nagy et al. as well as García and Nagy have presented results suggesting the efficacy of teaching native Spanish speakers explicitly about the value of cognates and of morphological relationships between Spanish and English. But no one has, to our knowledge, previously tested the impact of an English vocabulary enrichment intervention that combined direct word instruction with instruction in word-learning strategies on the word knowledge and reading comprehension abilities of ELLs. That was our major goal in the study presented here.

Theoretical framework for designing a vocabulary intervention

What is involved in learning words?

The intervention we tested and the measures we selected to assess its impact reflect our model of the complexity of word meaning. "Knowing a word" implies knowing many things about the word—its literal meaning; its various connotations; the sorts of syntactic constructions into which it enters; the morphological options it offers; and a rich array of semantic associates, including synonyms, antonyms, hypernyms, hyponyms, and words with closely related yet contrasting meanings, as well as its capacity for polysemy (see Bloom, 2002; Nagy & Scott, 2000, for reviews). Learning a word requires learning (over a series of encounters) these various aspects of its meaning, and inferring word meaning from context can also require being alert to these various aspects; a first encounter with a word might, for example, provide information about syntactic word class and some very general specification of meaning domain, whereas subsequent encounters will expand the semantic specification and may lead to discovery of polysemous possibilities. Thus, subsequent encounters build *depth* of word knowledge, which is as important in using words as is the more commonly assessed *breadth*. Second-language speakers have been shown to be lacking depth of word knowledge, even for frequently occurring words (Verhallen & Schoonen, 1993). Sensitivity on the part of learners to issues of depth (e.g., recognition that polysemy exists) may ease the process of reading comprehension.

How can one best promote word learning?

We present here findings from the implementation of a 15-week intervention focused on teaching useful words and word-learning strategies. The design of the intervention was related to practices shown to be effective in previous work (e.g., Beck et al., 1987; Blachowicz & Fisher, 1996; Graves, 2000; Huckin et al., 1995; Nagy, 1988; Nation, 2001; National Institute of Child Health and Human Development, 2000; Stahl, 1986) that together dictated our answers to key questions about which words to teach, how often to present them, what aspects of word knowledge to focus on, and what instructional activities to use.

(a) *Which words?* As recommended by Beck et al. (1987), the intervention focused on general-purpose academic words likely to be encountered across a variety of content areas, rather than words specific to a particular subject matter. In addition, we followed Beck et al.'s method by choosing words of middle-tier frequency that had depth potential and morphological and cognate affordances.

(b) *How to introduce the words?* We chose words from texts determined to be appropriate for and of interest to the learners, building on the evidence that engaging texts promote reading comprehension (Guthrie & Wigfield, 2000) and that encountering words in meaningful contexts promotes memory for them (Nation, 2001). We also selected texts that were available in Spanish as well as English, to facilitate engagement for the ELLs and to promote their comprehension of the context in which the words were introduced in English. (See list of words and activities taught in Appendix A and B and a summary of a week's worth of sample lessons in Appendix C.) Additional examples are presented in Lively, August, Snow, and Carlo (2003).

(c) *How often?* Target words should be encountered several times, in diverse contexts, and with varying tasks required of learners (Beck et al., 1987). By designing the intervention around texts and themes, we created a situation in which target words could be recycled in later lessons and would appear naturally with high frequency in the texts being read.

(d) *What aspects of word knowledge to focus on?* Our instruction focused on depth of meaning, polysemy, morphological structure, and cross-language relationships, as well as spelling and pronunciation, of the target words. The instruction was designed to provide children with general-purpose strategies for acquiring word meaning while at the same time teaching specific word meanings. Following Graves (2000) and others, we chose to promote strategic knowledge at some cost to the time available for building vocabulary size, because previous work (e.g., Stahl & Fairbanks, 1986) had shown the futility of trying to teach large numbers of words directly.

(e) *What instructional techniques?* The intervention relied on explicit instruction in using context to infer word meaning (Graves, 2000; Nation 2001), in depth of word meaning, in the possibility of polysemy, in performing morphological analysis, in glossary use, and in cognate use. (In all glossaries we included the Spanish translation for the meaning used in the text as well as the English definition. We also alerted students to the presence of polysemous words by including all definitions for the word and highlighting the definition used in the text.)

Collaborative work in groups that included both EOs and ELLs provided practice in English for ELLs and made knowledge about cognates available to EOs. Students were sensitized to the task of vocabulary acquisition using techniques like Word Wizard (see Beck, McKeown, & Kucan, 2002, for description of Word Wizard) in order to enhance their utilization of opportunities to extend word knowledge in nonlesson contexts. Teachers were provided with information about the principles of vocabulary acquisition as well as specific strategies to enhance their use of effective vocabulary teaching procedures outside the vocabulary lessons.

Method

Participants

The participants were 254 bilingual and monolingual children from nine fifth-grade classrooms in four schools in California, Virginia, and Massachusetts. The California site included two schools serving largely working class Mexican American children, either in bilingual or in mainstream programs. The Massachusetts site served working class, mostly Puerto Rican and Dominican students, again in either bilingual or mainstream classrooms, within a school where many of the teachers and administrators were bilinguals. The Virginia site was a magnet, English-medium school that served mainly working class Spanish speakers from the Caribbean and from Central America, together with native speakers of many other languages and middle class English-only speakers attracted by its excellent academic programs. While the variations across the three sites created some complexity in implementing the intervention and in interpreting the findings, they also assure us that any intervention effects found are quite robust.

One hundred forty-two of the student participants were ELLs, and 112 were EOs. Ninety-four of the ELLs and 75 of EOs were in the intervention condition. The remaining students (48 ELLs and 37 EOs) were in comparison classrooms.

Design

The study employed a quasi-experimental design in which classrooms at each site were randomly assigned to the treatment and comparison conditions. This procedure resulted in the assignment of 10 classes to the treatment (3 in California, 4 in Virginia, and 3 in Massachusetts) while 6 classrooms served as comparisons. Students in the comparison classrooms did not receive special instruction other than that normally included in the school curriculum, though their teachers did participate as members of school teams in professional development activities focused on vocabulary teaching two years prior to the introduction of the intervention.

Pilot

The intervention activities were piloted in the same three sites the year before the intervention itself was implemented. Over 200 Spanish-speaking ELLs and EO students participated in the pilot along with 12 teachers. This pilot was designed to enable us to refine the teaching activities and the student assessments. On the basis of the pilot we made decisions about complexity, genre, and variety of texts to use, and we decided that teachers implementing the intervention would benefit from ongoing professional development focused on the intervention.

Testing procedure

Fifth-grade smdents in the intervention and comparison classrooms were tested in the fall and the spring of the academic year on a series of tests designed to reflect the skills the curriculum taught (forming deeper representations of word knowledge, understanding polysemy, morphological analysis, inferring word meaning from context) as well as reading comprehension. Bilingual graduate research assistants administered all tests (see the Measures section). Because of various scheduling difficulties, not all students took all tests.

Intervention procedure

The intervention consisted of 15 weeks of instruction. Ten to 12 target words were introduced at the beginning of each week. Instruction was delivered for 30–45 minutes four days a week. Every fifth

week was devoted to review of the previous four weeks' target words.

The intervention was organized around the topic of immigration; the curriculum drew readings from newspaper articles, diaries, firsthand documentation of the immigrant experience, as well as historical and fictional accounts, building each week's five-day sequence of lessons around a single text unit. The lessons included some homework assignments and a weekly review test. The Spanish speakers were given the text (in both written and audiotaped versions) to preview in Spanish, on Monday, before its introduction in English on Tuesday. On Tuesday, whole-group lessons involved presentation of the English text and target words, followed by an activity that involved identifying target words in the text whose meanings could be inferred by context. Wednesday lessons involved work in heterogeneous language groups of four to six in which the children completed two types of cloze tasks with the target words. The first cloze task always involved sentence contexts that were consistent with the theme of the instructional text. A second cloze activity involved sentences that employed the target words in contexts that were distant in theme from the instructional text, being designed to help students understand and use related meanings for the target words, and in the process develop a sense that most words are polysemous. The Thursday lesson involved activities of the sort recommended by Beck et al. (2002) to promote depth of word knowledge (e.g., word association tasks, synonym/antonym tasks, semantic feature analysis). Again children typically completed these activities in small groups. On Fridays the activities varied in focus, as can be seen in Appendix B. During some weeks, Friday activities promoted analysis of root words and derivational affixes. In other weeks Friday activities were designed to promote awareness of word polysemy and cognates. These activities were designed to promote word analysis capacities in general, not specifically to reinforce learning of the target words.

The curriculum materials provided to the teachers included detailed lesson plans and quasi-scripted lesson guides, as well as overhead transparencies, worksheets, homework assignments, and all necessary reading materials. These materials and the words to be taught were previewed in biweekly Teacher Learning Community meetings facilitated by a researcher at each site. At these meetings, practices that had worked well in previous lessons and aspects of the curriculum that had been problematic were discussed. These meetings were meant to provide support to the teachers throughout the implementation of the curriculum and information to the researchers about aspects of the curriculum that were working well or not. The curriculum itself was not modified as a result of the meetings with the treatment teachers.

Fidelity of treatment

Three lessons (one from week 4, one from week 9, and one from week 13 of the curriculum sequence) were filmed in each intervention classroom to obtain data on the fidelity of implementation of the treatment at each site. The tapes were subsequently coded to reflect the degree to which the teacher correctly implemented the key elements of the lesson plan; for each key element, the teacher was rated as having omitted it, implemented it incompletely or incorrectly, implemented it fully, or enhanced it (White, 2000). These ratings achieved acceptable levels of reliability (Kendall coefficient of concordance = .70). They were summed per lesson per teacher to provide a single score indicating fidelity of implementation. Six of the nine teachers implemented over 70% of key lesson elements over the three weeklong observations, while one achieved only 35% implementation and the other two 50–60%. The three teachers with the highest fidelity enhanced the implementation with additional elements that were consistent with its design, and none of the six high implementers committed any errors of implementation. In fact, the poorest implementers committed errors in implementing only 4% of the elements; omission of elements was their major failing.

Measures

The measures used in the study are described below. Table 1 includes sample items and relevant psychometric information about each measure.

PPVT–R

Students were tested individually on the L form (pretest) and M form (posttest) of the Peabody Picture Vocabulary Test Revised (PPVT–R). Children who had been tested on PPVT–R in the spring of fourth grade were not retested until spring of fifth grade. Students new to the study were tested in both fall and spring.

Polysemy production

The students' task on the polysemy production test was to generate as many sentences as possible

TABLE 1
PROPERTIES OF FIFTH-GRADE ASSESSMENTS

	Mastery	Word Association	Polysemy	Cloze	Morphology
Total items	36	20	6	18	27
Possible range	0–36	0–54	0–54	0–18	0–135
Coefficient alpha	.83	.94	.64	.73	.94
Sample items	Rigid: (a) soft and smooth, (b) approved by someone in authority, (c) valuable, (d) stiff and difficult to bend	Policy: Uniform, decisions, plan, action, insurance, congress	Write a sentence for each meaning you know for pitch.	With time things got better and many settlers became ____. (a) anxious, (b) sick, (c) open, (d) prosperous	Election: How many people did they ____?

conveying the different meanings of the polysemous words. The words in the fifth-grade polysemy task were *ring*, *place*, *settle*, *pitch*, *back*, and *check*. The students' correct responses were awarded points on the basis of the frequency of the response in the response pool. Common responses were awarded one point (e.g., "Don't bug me" or "She left a ring in the tub"). Two points were awarded to responses in the intermediate range of frequency (e.g., "My mom drives a Volkswagen bug" or "The phone has a funny ring"). Three points were awarded to the correct but most infrequent responses in the pool (e.g., "There was a bug in the program" or "The boxer left the ring").

Reading comprehension

Reading comprehension was assessed with multiple-choice cloze passages with content words deleted at random. Students read three stories with six cloze items per story. Ten of the deleted words were taught in the intervention.

Word mastery

The mastery test was designed to determine if the vocabulary words directly taught were successfully learned. It consisted of 36 target word multiple-choice items. Each target word was followed by four short definitions. Students were asked to select the definition that best described the word.

Word Association task

This task, developed originally by Schoonen and Verhallen (1998), measured depth of word knowledge by tapping into children's knowledge of paradigmatic and syntagmatic word relations. The task consisted of 20 target words, half of which were included in the curriculum. Each of the target words appeared in the center of a page, with six other words printed around the periphery. Students were asked to draw lines from the target word to the three peripheral words most closely connected to it. Specifically, students were asked to pick three of the words that "always go with the word in the middle." For example, the word *debate* has immutable associations to the words *rival*, *discussion*, and *opinion* but only circumstantial associations to the words *president*, *television*, and *fight*.

Morphology

Children's knowledge of English morphology was assessed with a paper and pencil adaptation of Carlisle's (1988) Extract-the-Base task. Our task consisted of 27 items (fewer than a third were intervention words) that required that the student provide the base form of a derived word. Students heard the derived word (e.g., *discussion*) followed by a lean sentence context (e.g., What did he want to _____?) and were asked to provide the word that fit in the sentence (i.e., *discuss*). The items varied in the transparency of relationship between the derived and base forms. Some items involved no phonological or orthographic change (e.g., *remark-remarkable*); some involved a phonological change but no orthographic change (e.g., *nation-national*); some involved an orthographic change but no phonological change (e.g., *furious-fury*); and some involved both changes (e.g., *migration-migrate*). The children's spelling of the base words often did not conform to spelling conventions of English. The following coding scheme informed by Bear, Invernizzi, Templeton, and Johnston's (1996) spelling rubrics was used to score the students' responses.

5 points: Correct base, correctly spelled: *guide*

4 points: Correct morpheme boundaries and reasonable spelling with all phonemes represented: *assist, emty, cantinew*

3 points: Correct morpheme boundaries, more deviant spelling with all phonemes represented: *viori, oqupie*

2 points: Derived form, but base word preserved/visible and more or less correctly spelled: *elected, assisted*

1 point: Some of the target sounds represented, but basically the wrong word: *sends* for *sense*

0 points: Completely incorrect. This category includes reproducing the stimulus word (*discussion*) or providing words that are morphologically unrelated to the stimulus word (*hire* for *employ*)

Results

Effect of the intervention

A multivariate analysis of variance performed on the six dependent measures for which scores were available (Task: Mastery, Word Association, Polysemy, Cloze, Morphology) in both fall and spring (Time), and incorporating as predictor variables site, language status, and condition, revealed overall between-subjects effects attributable to site and to language status. Tests of within-subjects effects showed significant gains over time, and a significant interaction between gain over time and condition, as well as a three-way interaction between gain over time, site, and condition (see Table 2).

TABLE 2
RESULTS OF MANOVA ON FIFTH-GRADE OUTCOMES

Effect	*F*	*df*	*MSE*	*p*
Time of test	104.99	1,82	47.39	***
Time × condition	7.92	1,82	47.39	**
Time × condition × school	3.85	2,82	47.39	**
Task	434.53	1,82	351.15	***
Task × language	30.94	1,82	351.15	***
Task × school	4.03	3,82	351.15	*
Task × language × school	3.76	3,82	351.15	*
Time × task	44.55	1,82	37.35	***
School	4.65	3,82	727.07	**
Language	56.74	1,82	727.07	***
School × language	3.89	3,82	727.07	*

*$p < .05$; **$p < .01$; ***$p < .001$.

These results confirmed the justifiability of pursuing analysis with each of the outcome variables individually (see Table 3) following normal practice (Myers & Well, 1991).

While a conservative approach to the follow-up analyses would correct for Type I error rate per family of contrast, we chose to report uncorrected effects given the unavailability of data about vocabulary intervention effects in this population. The reader should note that effects for which the probability level is larger than .01 would not meet the more stringent standard based on the Bonferroni adjustment.

PPVT–R, a measure designed to reflect individual differences but to be insensitive to curricular influences, was significantly higher for the EO students and showed significant gains from fall to spring. It also differed significantly across the three sites, with the highest scores in Virginia and the lowest in Massachusetts. It did not, however, reveal any influence of treatment; the treatment group by gains interaction term was not significant, nor were any other interactions with gains detected.

We analyzed the remaining five measures, Mastery, Polysemy, Word Association, Cloze, and Morphology, covarying PPVT–R to reduce effects associated with differences in initial English proficiency and with site differences in populations being served. These five measures showed a gradient of effects. Mastery, Word Association, Polysemy, and Cloze all showed the same general pattern of results demonstrating impact of the intervention: The intervention group showed greater gain in the course of the school year than the comparison group. Mastery, Word Association, and Polysemy also showed an interaction of gain over time with site, reflecting either differential effectiveness of the implementation across the various sites or differential susceptibility to the impact in the various sites (see Figures 1 through 5).

Morphology showed only marginally significantly differential gains as a function of condition or site. Morphology, Mastery, and Word Association all showed a three-way interaction, indicating larger gains for the intervention than the comparison group in some sites (see Figures 4a and 4b). These interactions with site could reflect either population or implementation differences.

Main effects of language group were found for Word Association and Polysemy, reflecting the generally higher performance of native English speakers. Main effects for site were found for Morphology, Mastery, and Word Association. The site differences may reflect the distinctive demographics of the three sites, differing recruitment policies for the schools involved, or quality of education delivered.

TABLE 3
RESULTS OF ANOVAS ON EACH OUTCOME MEASURE ADMINISTERED IN FIFTH GRADE

		Mastery	Word Association	Polysemy	Cloze	Morphology
Time of test						
	F	**7.64	ns	ns	ns	**11.46
	df	(1,218)				(1,217)
	MSE	9.09				94.83
	η^2	.03				.05
Time by PPVT–R						
	F	ns	*4.71	ns	*4.73	ns
	df		(1,217)		(1,213)	
	MSE		24.82		3.72	
	η^2		.02		.02	
Time × condition						
	F	***113.28	**11.24	**11.23	***17.84	ns
	df	(1,218)	(1,217)	(1,212)	(1,213)	
	MSE	9.09	24.82	3.23	3.71	
	η^2	.34	.05	.05	.08	
Time × school						
	F	886.38	***5.19	*3.80	ns	ns
	df	(2,218)	(2,217)	(2,212)		
	MSE	9.09	24.82	3.23		
	η^2	.06	.05	.04		
Time × condition × school						
	F	***11.46	*3.48	ns	ns	***9.37
	df	(2,218)	(2,217)			(2,217)
	MSE	9.09	24.82			94.84
	η^2	.10	.03			.08
Time × language × school						
	F	ns	ns	ns	ns	*4.44
	df					(2,217)
	MSE					94.84
	η^2					.04
PPVT–R						
	F	***198.49	***78.62	***49.42	***137.12	***119.37
	df	(1,218)	(1,217)	(1,212)	(1,213)	(1,217)
	MSE	24.87	37.85	11.49	8.80	849.53
	η^2	.48	.27	.19	.39	.36
Condition						
	F	***52.22	ns	ns	*4.91	ns
	df	(1,218)			(1,213)	
	MSE	24.87			8.80	
	η^2	.19			.02	
Language						
	F	ns	**10.24	***13.05	ns	ns
	df		(1,217)	(1,212)		
	MSE		37.85	11.49		
	η^2		.05	.06		
School						
	F	***8.59	ns	ns	***12.56	**7.01
	df	(2,218)			(2,213)	(2,217)
	MSE	24.87			8.80	849.53
	η^2	.07			.11	.06
Language × condition						
	F	ns	ns	**7.36	ns	ns
	df			(1,212)		
	MSE			11.49		
	η^2			.03		
School × condition						
	F	**5.83	**5.05	ns	ns	**4.90
	df	(2,218)	(2,217)			(2,217)
	MSE	24.87	37.85			849.53
	η^2	.05	.04			.04

*$p < .05$; **$p < .01$; ***$p < .001$.

FIGURE 1A
AVERAGE ELL FIFTH-GRADE FALL AND SPRING PERFORMANCE ON THE MASTERY TASK AS A FUNCTION OF SITE AND CONDITION

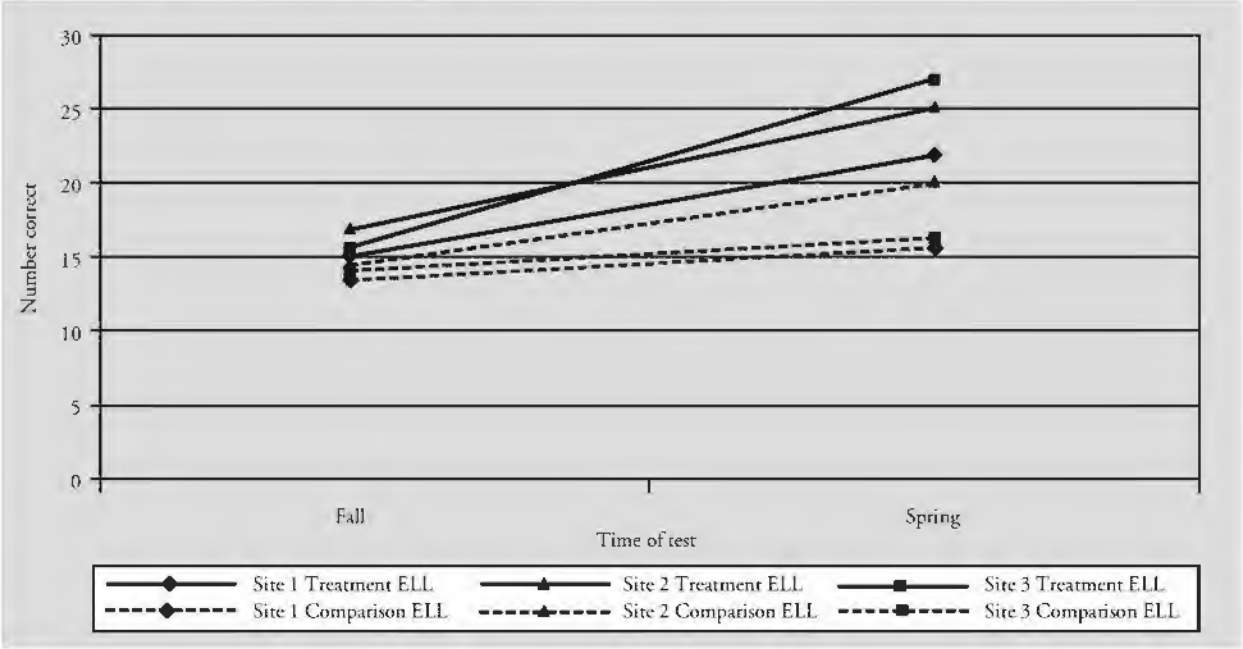


FIGURE 1B
AVERAGE EO FIFTH-GRADE FALL AND SPRING PERFORMANCE ON THE MASTERY TASK AS A FUNCTION OF SITE AND CONDITION

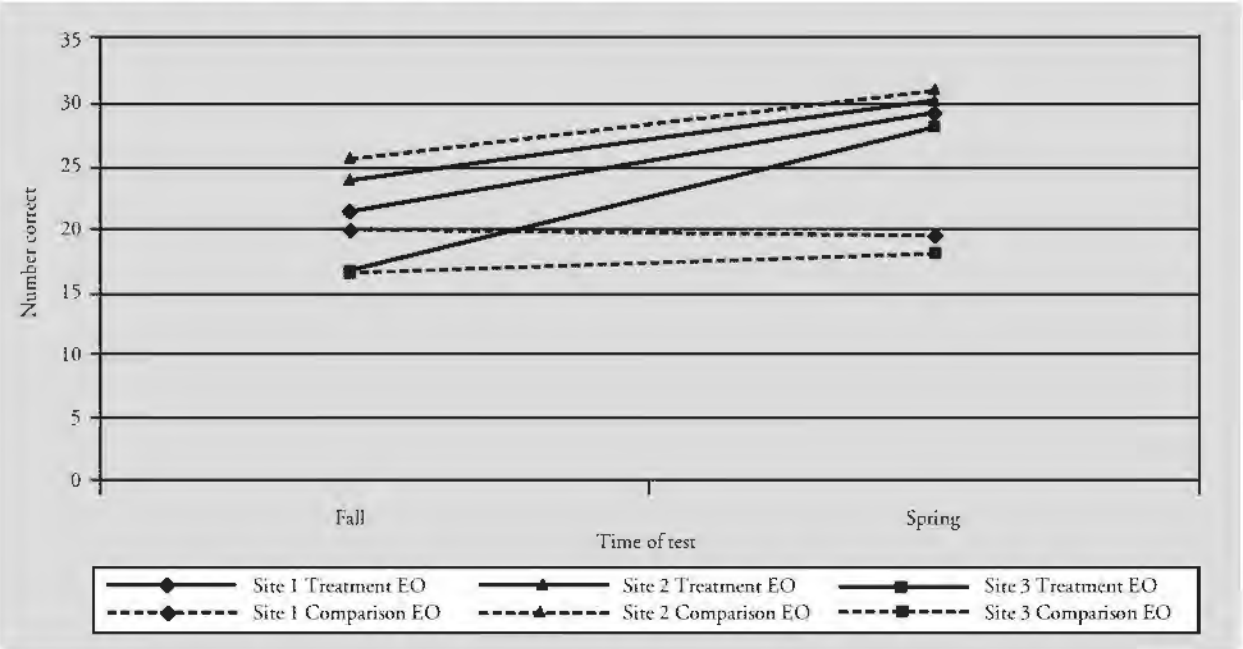


FIGURE 2A
AVERAGE ELL FIFTH-GRADE FALL AND SPRING PERFORMANCE ON THE CLOZE TASK AS A FUNCTION OF SITE AND CONDITION

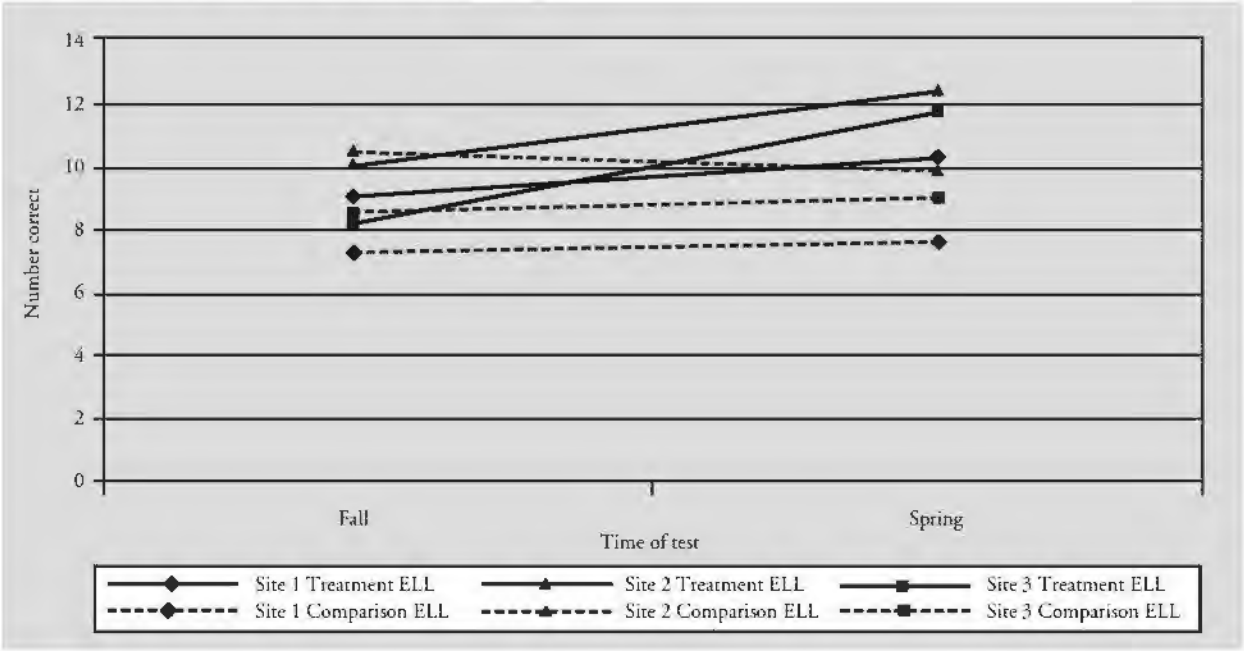


FIGURE 2B
AVERAGE EO FIFTH-GRADE FALL AND SPRING PERFORMANCE ON THE CLOZE TASK AS A FUNCTION OF SITE AND CONDITION

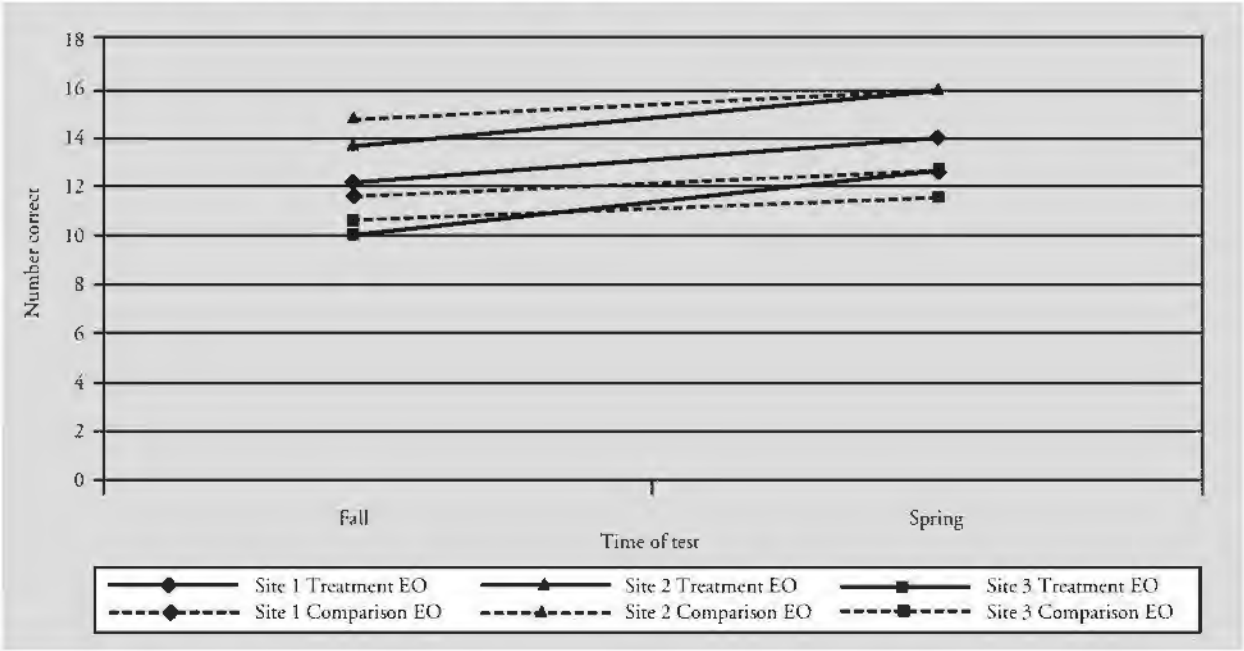


FIGURE 3A
AVERAGE ELL FIFTH-GRADE FALL AND SPRING PERFORMANCE ON THE WORD ASSOCIATION TASK AS A FUNCTION OF SITE AND CONDITION

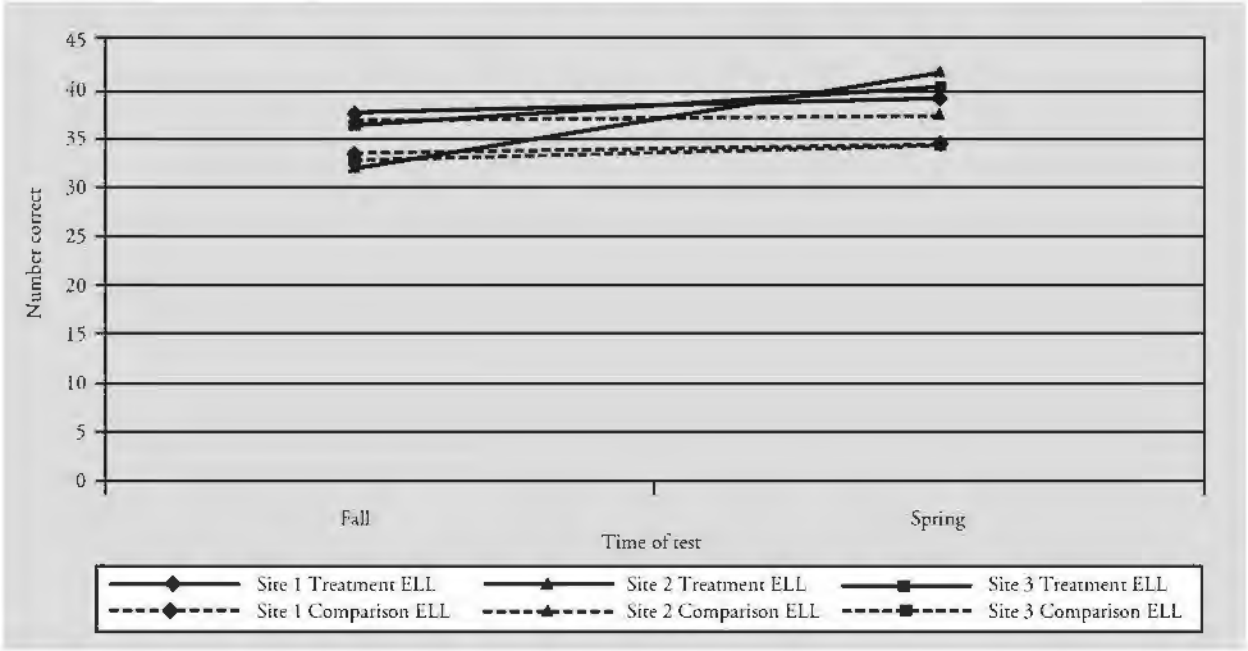


FIGURE 3B
AVERAGE EO FIFTH-GRADE FALL AND SPRING PERFORMANCE ON THE WORD ASSOCIATION TASK AS A FUNCTION OF SITE AND CONDITION

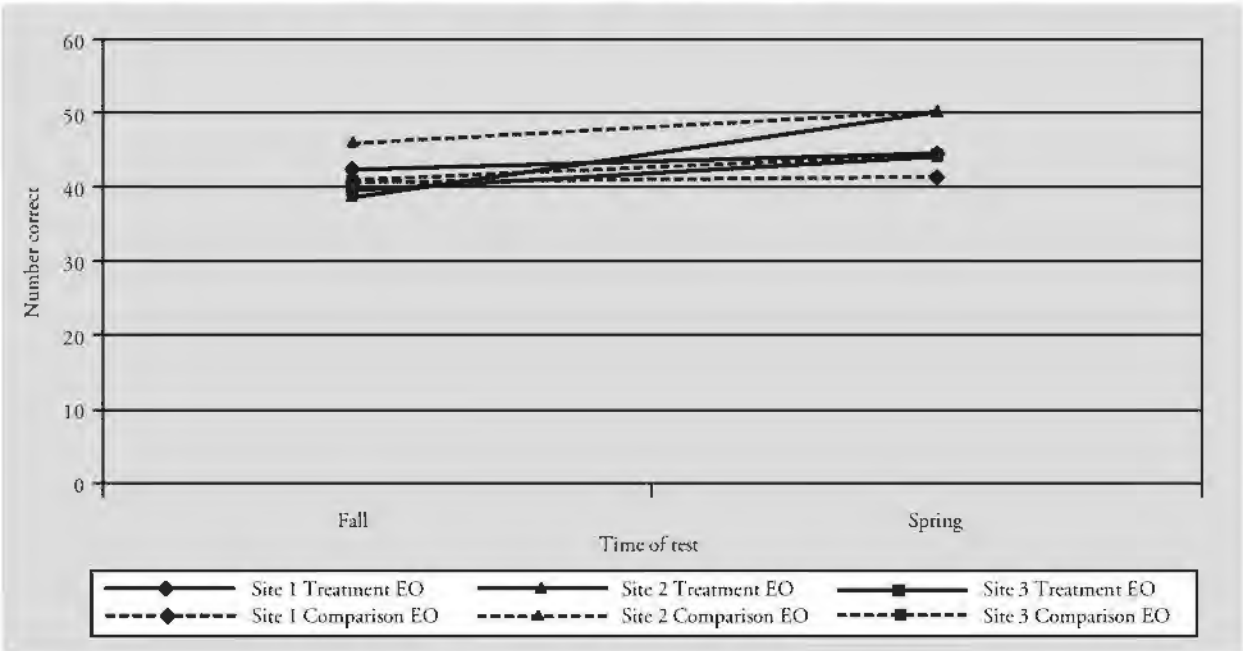


FIGURE 4A
AVERAGE ELL FIFTH-GRADE FALL AND SPRING PERFORMANCE ON THE MORPHOLOGY TASK AS A FUNCTION OF SITE AND CONDITION

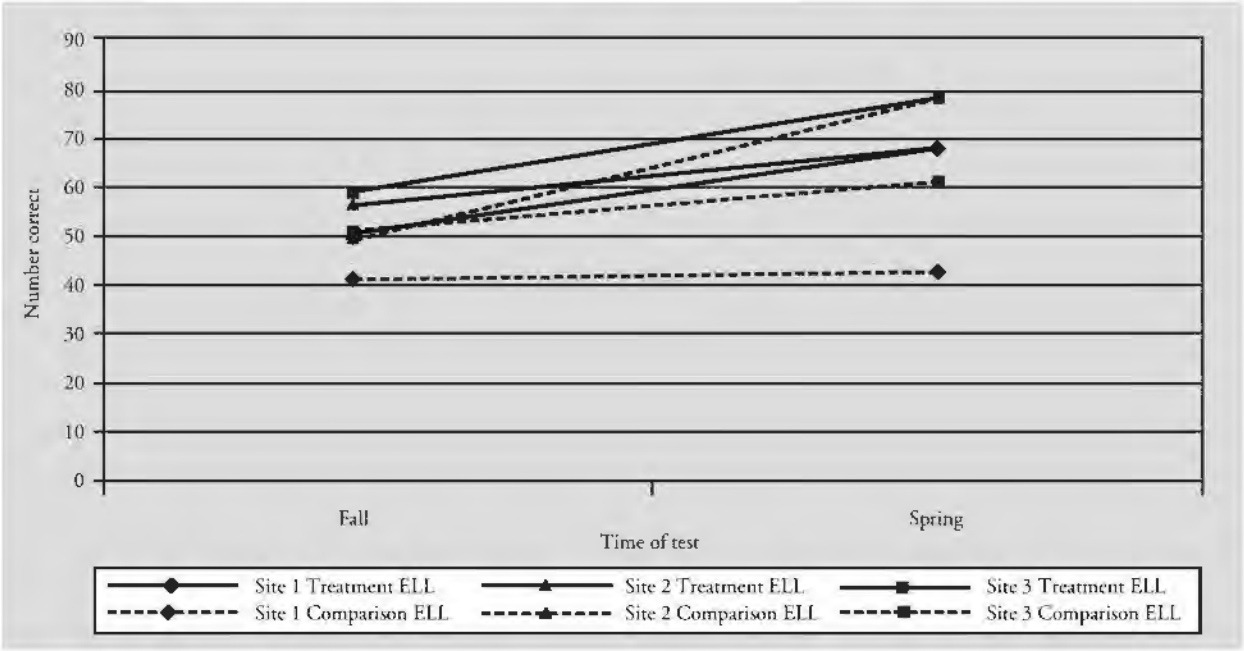


FIGURE 4B
AVERAGE EO FIFTH-GRADE FALL AND SPRING PERFORMANCE ON THE MORPHOLOGY TASK AS A FUNCTION OF SITE AND CONDITION

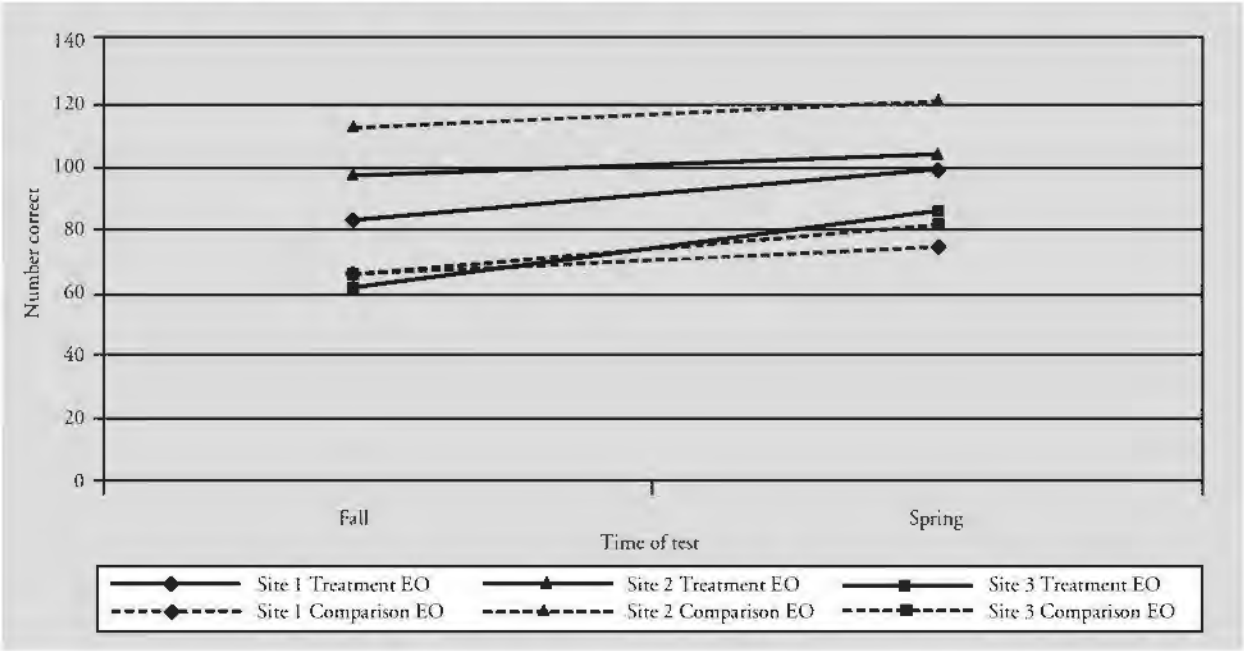


FIGURE 5A
AVERAGE ELL FIFTH-GRADE FALL AND SPRING PERFORMANCE ON THE POLYSEMY TASK AS A FUNCTION OF SITE AND CONDITION

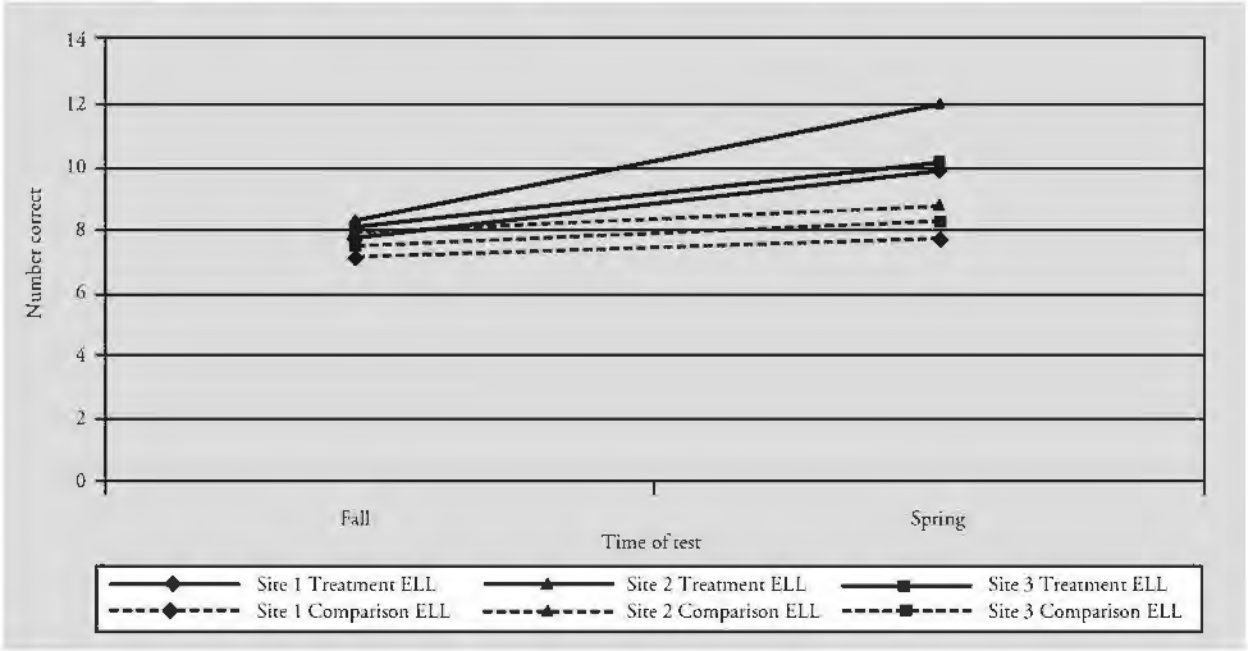
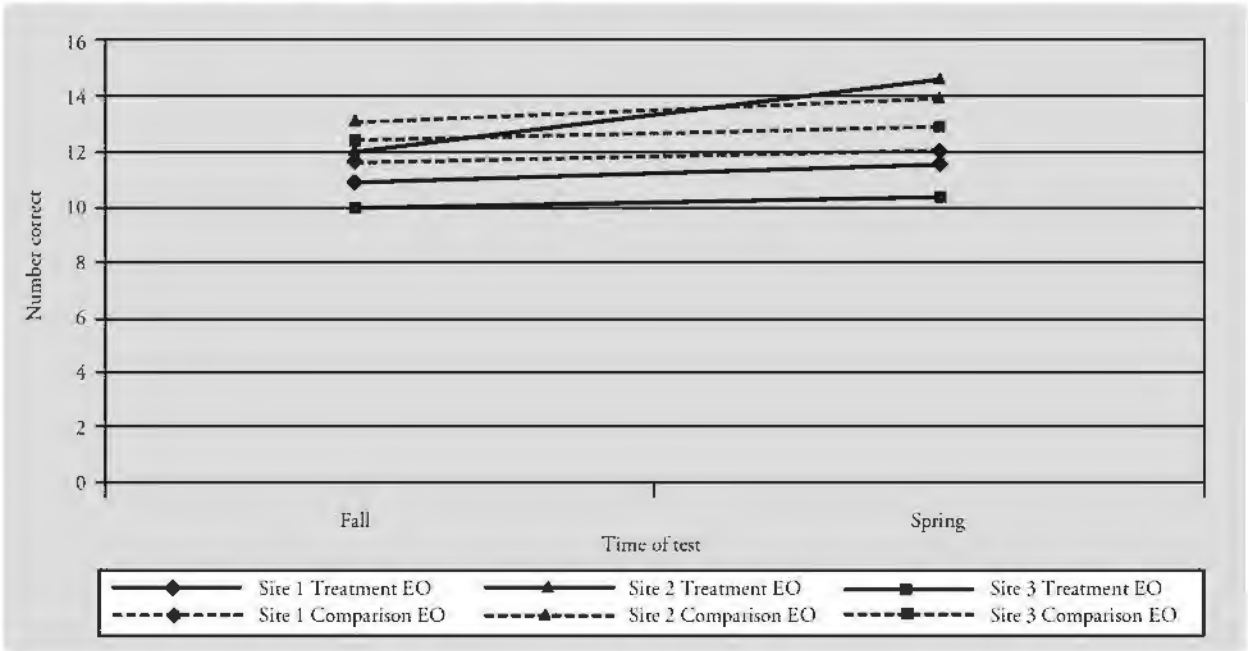


FIGURE 5B
AVERAGE EO FIFTH-GRADE FALL AND SPRING PERFORMANCE ON THE POLYSEMY TASK AS A FUNCTION OF SITE AND CONDITION



The fact that these language group and site differences emerged despite controls for PPVT–R suggests that differences across the sites in level of performance and in impact of the intervention can be explained only partly by differences in demographic characteristics among the children served. The striking conclusion must be that the effectiveness of the vocabulary instruction was quite resistant to disruption from other influences.

Fidelity of implementation

Why were there persistent differences among the sites in so many outcomes? The three sites differed, as noted above, in their demographics, in the organization of schooling for ELLs, and in aspects of teacher functioning. Informal observations suggested differences within and across the schools in the enthusiasm with which the intervention was embraced, in the reflectiveness and thoroughness with which it was implemented, as well as in the quality of instruction that was occurring during the rest of the school day. To see whether fidelity and quality of implementation were accounting for site differences, fidelity ratings were introduced into regression analyses, using spring scores on each of the five intervention-sensitive measures as outcomes; fall score on the same measure, language group, and PPVT–R were introduced first to see if fidelity ratings accounted for differences in spring scores. For none of the measures did fidelity significantly increase the amount of variation explained, nor were differences between children in the classrooms of high- versus low-fidelity implementers significant. Thus, though there was considerable variation across site and across teacher in fidelity, those differences do not help explain gains.

Discussion

The major goal of this study was to test the impact of an English vocabulary enrichment intervention that combined direct word instruction with instruction in word-learning strategies on outcomes for ELLs. In addition, we wanted to test the impact of that same curriculum on EOs in the same classrooms. We found that a challenging curriculum that focused on teaching academic words, awareness of polysemy, strategies for inferring word meaning from context, and tools for analyzing morphological and cross-linguistic aspects of word meaning did improve the performance of both ELL and EO fifth graders, to equal degrees. The children in the intervention classrooms gained knowledge of the words that were explicitly taught as well as knowledge that should support the efficiency of their incidental learning of novel words (i.e., vocabulary depth as well as knowledge about morphological structure, about cognates, and about polysemy). Thus, we confirmed the effectiveness for ELLs of approaches to vocabulary teaching such as that pioneered by Beck et al. (1987) that had previously been shown effective only with EOs; we demonstrated that procedures previously shown effective only with ELLs, such as those pioneered by Nagy et al. (1993), could be used in mixed-language groups in mainstream classrooms; and we developed a single curricular approach that incorporated many specific techniques and strategies, such as those developed by Graves (2000), Nagy (1988), Stahl (1986), and others, previously shown to be effective in supporting vocabulary learning.

A second goal of this study was to see whether improved vocabulary and word analysis skills would be associated with improved reading comprehension outcomes. We found that, for both ELLs and EOs, the intervention was effective in improving reading comprehension outcomes. The effects for reading comprehension were less dramatic than for word knowledge, as shown by the effect size of .08 (eta squared) on the reading comprehension measure as compared with .34 for mastery of the words taught. Nonetheless, it is striking that any improvement in reading comprehension was measurable after a relatively brief curricular intervention that did not focus specifically on teaching comprehension.

Thus, we conclude that direct vocabulary instruction is effective, with both ELL and EO learners, if it incorporates the various principles gleaned from previous work on monolingual English speakers and ELLs (Beck et al., 1987, 2002; Graves, 2000; Nagy, 1997; National Institute of Child Health and Human Development, 2000; Stahl & Fairbanks, 1986). For example, teachers should introduce novel words in the context of engaging texts, design many activities such as Charades that allow learners to manipulate and analyze word meaning, heighten attention to words in general with techniques like Word Wizard, ensure that learners write and spell the target words several times, ensure repeated exposures to the novel words, and help children note how the word meaning varies as a function of context. We also conclude that teaching children strategies for inferring the meaning of unknown words is effective, with both ELL and EO learners, if it builds on well-verified procedures (García & Nagy, 1993; Graves; Jiménez et al., 1996; Nagy et al.,1993) such as teach-

ing explicitly how to use context cues, teaching morphological analysis, and teaching about cognates.

Challenges to curricular change

Another conclusion to be drawn from this work is the complexity of implementing a challenging curriculum in urban schools. The teachers in our study were volunteers, and most were experienced classroom practitioners. They were, however, working in schools that were adopting a variety of curricular initiatives, which in some cases diverted time and attention from this particular intervention. Furthermore, though we made every attempt to provide curricular materials that were self-explanatory and easy to use, those materials presupposed knowledge about vocabulary and about lexical analysis that the teachers in some cases did not possess. Despite efforts to design the curriculum so it could be used with little additional preparation time from the teachers, we found it necessary to provide considerable professional support, and even so, differences in quality of implementation were measurable.

Additional measures of success

The intervention was, overall, successful in its specific aim of enhancing reading skills and word knowledge. It was successful by other measures as well. The teachers reported quite a high level of satisfaction with the materials, and the students enjoyed the lessons and displayed heightened sensitivity to word meanings and increased awareness of Spanish–English relationships (see Dressler, 2000). It is disappointing, on the other hand, that the intervention was not observed to change classroom practice outside the structured lessons and has not survived as an intact instructional program in any of the classrooms where it was introduced, though some teachers report continuing to use some of the techniques they learned during the intervention.

The challenge of optimizing learning for ELL and EO children simultaneously

The intervention assessed here incorporated a number of specific instructional components (e.g., the specific texts used, the small-group activities, the crossword puzzles and other homework assignments) that we believe contributed to its success, though we could not assess their independent impact. Some of these components were designed to support the participation of Spanish speakers: providing the key texts in Spanish so they could be previewed, providing translation equivalents of the target words in the teaching materials, selection of immigration as the organizing topic, inclusion among the texts to be read of several that were particularly relevant to the experiences of Mexican and Dominican immigrant families, and incorporating instructional activities that relied on the Spanish speakers as resources (e.g., in identifying cognates). Our analyses cannot help us decide whether these supports for Spanish speakers' participation contributed importantly to the effectiveness of intervention for them, or indeed whether it contributed to or detracted from its effectiveness with their English-only classmates. Future research might well explore the impact of these various components independently.

Limitations

This study was, of course, subject to many limitations. Several of the measures we used were experimenter designed, though their psychometric properties were satisfactory. We did not employ a standardized measure of reading comprehension; we relied on cloze procedures because they have often been used to study the interaction between comprehension and word knowledge. However, concerns have been raised in the research literature about the value of cloze tests as measures of comprehension (Shanahan, Kamil, & Tobin, 1982). Testing the effects of the intervention on comprehension performance using a wider variety of reading measures would be valuable. Because we had no general measure of English-language proficiency for the E.L. students, we were unable to test the interaction between English proficiency and intervention effects. Given the enormous variability in English proficiency among E.L.s, it would be important to determine whether the effects of the intervention vary as a function of English proficiency.

In addition, we were unable to test long-term effects of the intervention, either on students or on teachers. A particular issue to think about in evaluating a curriculum-based intervention like this is the trade-off between the value of a predesigned chunk of curriculum with some built-in professional development versus a more significant investment in professional development itself. Giving teachers more access to information about and practice with the vocabulary teaching techniques incorporated into the intervention might have enabled them to use those techniques more broadly across a variety of subject areas, possibly with greater impact than the 45-minute vocabulary-focused lessons we designed.

Conclusion

The key distinction of the vocabulary training offered here was that teaching new words was subordinated to the goal of teaching about words—various kinds of information about words that could help children figure out word meanings on their own. Thus, the curriculum introduced only 12 to 14 new words a week, sacrificing the opportunity to teach an additional 10 to 15 words in order to focus instruction on strategies for narrowing candidate word meanings by using context, noticing words in new contexts, checking the likelihood that the word has a Spanish cognate, and analyzing morphological structure for cues to meaning. Such strategies could have ongoing value to children who encounter unknown words in semantically rich contexts, who understand enough of the context to use contextual information in analyzing word meaning, and who remember to use them. Their value at least in the short run was, in fact, confirmed by our finding of a significant impact on reading comprehension.

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AUTHORS' NOTE

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EDITORS' NOTE

This manuscript was accepted prior to the finalization of the *RRQ* guidelines pertaining to conflict of interest (see Editorial in *RRQ*, Vol. 39, Issue 1).

APPENDIX A

TARGET WORDS (NONCOGNATES ARE IN ITALICS) TAUGHT DURING INTERVENTION BY WEEK OF INSTRUCTION

Week	Title of reading material	Source of selection	Target words
(1)	A journey to the new world—Part 1	Lasky, K. (1996). *Dear America: A journey to the new world. The diary of Remember Patience Whipple*. New York: Scholastic.	Ambition, catastrophe, determination, dictator, discriminate, diverse, epidemic, *famine*, *flee*, immigrant, motive, optimism, prospect, *settle*
(2)	A journey to the new world—Part 2	Same as above	Authority, condemn, corrupt, establish, faction, native, persecution, *pilgrim*, political, puritan, reformer, *reign*, *scorn*, *worship*
(3)	A journey to the new world—Part 3	Same as above	Accumulate, *charter*, coalition, colony, economy, essentially, financial, *grueling*, idealist, *indenture*, *livelihood*, merchant, *profit*, *sponsor*
(4)	Immigrant kids	Freedman, R. (1980). *Immigrant kids*. New York: Puffin.	Ally, contact, determine, document, *draft*, *exert*, *fledgling*, jurisdiction, official, *ominous*, *ravage*, *surplus*, *trade*, *treaty*
(5)	Review week		No new words
(6)	Immigrant kids at home—Part 1	Same as above	Absorb, century, congested, custom, dense, dialect, district, ethnic, fervent, impoverished, occupy, prosperous, social, *tenement*
(7)	Immigrant kids at home—Part 2	Same as above	*Arouse*, common, congregate, *dank*, elevated, humanity, monotonous, *pitched battle*, *relief*, rival, *stifling*, torment, ultimatum, unfamiliar

(continued)

APPENDIX A

TARGET WORDS (NONCOGNATES ARE IN ITALICS) TAUGHT DURING INTERVENTION BY WEEK OF INSTRUCTION (continued)

Week	Title of reading material	Source of selection	Target words
(8)	Immigrant kids at school—Part 1	Same as above	*Allegiance*, facility, humiliate, laborious, meticulous, monitor, nonexistent, penetrating, *pledge*, promote, represent, rigid, *script*, *strive*
(9)	Immigrant kids at school—Part 2	Same as above	Agency, anxiety, fundamental, *heritage*, obtain, periodic, reflect, *reject*, *shame*, stenography, tradition, transform, values, vocational
(10)	Review week		No new words
(11)	New kids in town	Bode, J. (1989). *New kids in town: Oral histories of immigrant teens*. New York: Scholastic.	*Amend*, collective, debate, demographics, extend, impression, *inaccurate*, *issue*, *midst*, opportunity, resident, *shift*, *stem*, unprecedented
(12)	The new immigrant tide: A shuttle between worlds	*The New York Times*. (1998, July 19–21).	Campaign, civic, concentration, contemplate, *degree*, dual, ebullient, *forsaken*, fracture, in utero, *renown*, *shuttle*, *straddle*, transnational
(13)	A Mexican town that transcends all borders	Same as above	Assimilate, *bestride*, communal, *flourish*, hybrid, identity, *juncture*, novel, psyche, redefine, saga, *span*, transcontinental, transcend
(14)	The new immigrant tide—Part II	Same as above	*Balk*, conscious, hyperdeveloped, immediate, inevitable, *maintain*, *overwhelming*, profound, revolutionize, status, technology, tentative, *underclass*, vital
(15)	Review week		No new words

APPENDIX B

SUMMARY OF VOCABULARY INSTRUCTION ACTIVITIES BY DAY AND WEEK OF INTERVENTION

Week	Day 1	Day 2	Day 3	Day 4	Day 5
(1)	Preview for ELLs; students listen to Spanish summary of reading passage and preview list of target words	Introduction; predict story line; read passage; circle vocabulary; extract definitions; assign homework	Using words in context; complete cloze sentences working in groups	Expanding meaning: Word roots	Tools to develop vocabulary: Cognates
(2)	Same as above	Same as above	Same as above	Expanding meaning: Deep processing	Tools to develop vocabulary: Affixes
(3)	Same as above	Same as above	Same as above	Expanding meaning: Deep processing	Tools to develop vocabulary: Idioms
(4)	Same as above	Same as above	Same as above	Expanding meaning: Multiple meanings	Tools to develop vocabulary: Root words
(5)	Word bee	Word meaning analysis	Charades	Word guess	Posttest
(6)	Preview for ELLs	Introduction	Using words in context	Expanding meaning: Antonyms/ synonyms	Tools to develop vocabulary: Inferencing
(7)	Same as above	Same as above	Same as above	Expanding meaning: Deep processing	Tools to develop vocabulary: Cognates
(8)	Same as above	Same as above	Same as above	Expanding meaning: Word substitution	Tools to develop vocabulary: Affixes

(continued)

APPENDIX B

SUMMARY OF VOCABULARY INSTRUCTION ACTIVITIES BY DAY AND WEEK OF INTERVENTION (continued)

Week	Day 1	Day 2	Day 3	Day 4	Day 5
(9)	Same as above	Same as above	Same as above	Expanding meaning: Related words	Tools to develop vocabulary: Root words
(10)	Homework	Polysemy	Charades	Word sort	Posttest
(11)	Preview for ELLs	Introduction	Using words in context	Expanding meaning: Synonyms/ antonyms	Tools to develop vocabulary: Dictionaries
(12)	Same as above	Same as above	Same as above	Expanding meaning: Synonyms/ antonyms	Tools to develop vocabulary: Root words
(13)	Same as above	Same as above	Same as above	Expanding meaning: Word substitution	Tools to develop vocabulary: Cognates
(14)	Same as above	Same as above	Same as above	Expanding meaning: Deep processing	Tools to develop vocabulary: Multiple meanings
(15)	Homework	Word guess	Charades	Word bee	Posttest

APPENDIX C

OVERVIEW OF WEEK 7 ACTIVITIES: *IMMIGRANT KIDS AT HOME*

Lesson	Instructions to teacher in teacher handbook	Instructions to student in student workbook
Day 1: Preview for ELLs	❑ Instruct ELL students to go to stations where they will listen to audiotaped recordings of the Spanish version of the English text to be read the next day. ❑ Students will also be given brief definitions for Spanish translations of the English target words.	❑ Listen to audiotape.
Day 2: Introduction of text and vocabulary inferring strategies	❑ Engage students in a brief story prediction activity using illustrations and review of prior week's story. ❑ Read the passage aloud to the students. ❑ Read posted target words. ❑ Reread the passage aloud to the students. ❑ Call on students who appear to know the meaning of the target word. ❑ Guide students in discussion of those words whose meaning can be inferred from the context. ❑ Guide students in discussion of meaning of compound words in the passage and add to the compound word wall. ❑ Assign homework: definitions.	❑ Three- to five-minute student discussion of predictions ❑ Listen to passage and follow along in your workbook. ❑ Read posted target words. ❑ As teacher rereads the passage circle each of the target words as they come up in the text. Raise your hand if you know the meaning of the target word without having to look it up in your glossary for this week. ❑ For homework write the correct target vocabulary word next to the definition provided.

(continued)

APPENDIX C

OVERVIEW OF WEEK 7 ACTIVITIES: *IMMIGRANT KIDS AT HOME* (continued)

Lesson	Instructions to teacher in teacher handbook	Instructions to student in student workbook
Day 3: Using words in context	❑ Review homework using the homework transparency that is provided. Write the correct responses on the transparency. ❑ Group students in heterogeneous language groups of four or five students. ❑ Show students the transparency for the Contexting activity (see example below). Have students discuss the answers and raise their hands when every member of the group knows the answer and agrees with the group's answer. Assign points to groups for correct answers. ❑ Ask one member of the group to provide the answer and to explain why it is the correct one. ❑ Read aloud three or four sentences from previous week's Word Wizard activity. Send the sentences to the project webmaster so that they may be posted on the project website. ❑ Assign homework: crossword puzzle, Word Wizard List for posting at home.	❑ Correct your homework responses if necessary. ❑ As a group discuss each of the items in the Contexting activity in your workbook. Write the answer in your workbook. ❑ Complete the crossword puzzle on your own.
Day 4: Expanding meaning	❑ Review crossword puzzle homework using the homework transparency that is provided. Write the correct responses on the transparency. ❑ Group students in heterogeneous language groups of four or five students. ❑ Guide students through Deep Processing activity using the transparency that is provided (see example below).	❑ Correct your homework responses if necessary. ❑ As a group discuss each of the items in the Deep Processing activity in your workbook. Write the answer in your workbook.

(continued)

APPENDIX C

OVERVIEW OF WEEK 7 ACTIVITIES: *IMMIGRANT KIDS AT HOME* (continued)

Day 5: Tools to develop vocabulary and vocabulary review	❑ Group students in heterogeneous language groups of four or five students for the Cognates activity. Be aware that ELL students will be the experts in this task. Instruct them to help English-speaking group members complete the activity. ❑ Guide students through Cognates activity using the transparency that is provided (see example below). ❑ Instruct students to complete the Vocabulary Review activity individually.	❑ As a group discuss each of the items in the Cognates activity in your workbook. Write the answer in your workbook. ❑ Complete the Vocabulary Review by writing the correct target vocabulary word next to the definition provided.

Vocabulary inferring strategies (example of directions to teacher)

❑ Before you reread the passage from the transparency, say, *Follow along in your Student Word Book as I read the passage again. Give me a "thumbs up" when I read a target word and then circle the word. If you think you know what the word means, without reading the definition, raise your hand and I will call on you.*

❑ After students have suggested meanings, say, *Let's check the definition to see how close you were.*

❑ Meaning can be inferred for *humanity*. When you reach *humanity*, say, *Remember that sometimes you can figure out what a word means by skipping over it and finishing the sentence. Or you can reread the sentence while thinking about what the word might mean. Let me remind you how this works by reading the sentence with humanity in it. "The sunlight and fresh air of our mountain home...were replaced by four walls and people over and under and on all sides of us until it seemed that* ***humanity*** *from all corners of the world had congregated in this corner of New York City." Let's see, earlier in the sentence it talks about people on all sides of them. Do you think humanity has something to do with groups of people? Let's look up the definition to see if we're close.*

Word Wizard activity (example of directions to teacher)

❑ Encourage each group of students to read 3–4 sentences from the previous week. Choose one from each group to be posted on the Web.

❑ Motivate students to find sentences with this week's vocabulary. Say, *Each time you hear or read one of this week's words used in a sentence at home, school, or even on TV, I want you to write the sentence on a sentence strip. Please write down where you heard or read it.*

(continued)

APPENDIX C

OVERVIEW OF WEEK 7 ACTIVITIES: *IMMIGRANT KIDS AT HOME* (continued)

Contexting activity (example of directions to teacher)

- ❑ Using the transparency (in Teacher's Materials), read the first cloze sentence aloud to the class.
- ❑ Say, *Your job is to figure out which word fits in the blank using the clues that are in the sentence. When everyone in the group knows the correct word and why it fits, raise your hands. I'll call on one of the first groups ready. You will get a point if you get the correct answer. Remember, everyone in your group must know the answer and why it is correct.*
- ❑ Ask one child at a table for the correct answer and to explain why it is correct.
- ❑ Find ways to encourage English-language learners to participate.
- ❑ Continue until the lesson is completed, giving each group 1 point for each correct answer.
- ❑ Note that first set of 14 cloze sentences consists of "near contexts." These are sentence contexts that are similar in topic to the target passage (e.g., Many immigrants from the same country gather together for religious holidays. They often congregate at the local church.) The second set of 14 cloze sentences are "far contexts" indicating the use of the word in a different thematic context (e.g., At some parties, the guests like to congregate in a person's kitchen).

Deep processing activity (example of directions to teacher)

- ❑ Say, *You have already learned many of the definitions for this week's vocabulary words. Remember that definitions alone don't teach you everything you need to know to really understand what a word means. In today's activity you will be asked to think about how one word's meaning relates to another word's meaning. Does anyone remember what this is called? That's right, it is deep processing.*
- ❑ Say, *For example, remember when I asked you to think about a reformer. Which of these things would a reformer be likely to do? (a) Go to the park for a picnic; (b) work to change rules that are not fair to a group of people; (c) notice that something isn't fair and say, "Oh well, I can't do anything."*
- ❑ Say, *When you think about each of these possibilities, ask yourself whether a reformer would or would not be likely to do each thing. This makes you think more about reformers and gives you a richer and deeper picture of what reformer means.*
- ❑ Say, *Now you will work in your groups with questions similar to the one we just talked about. Your job is to read each question and talk with your group to decide which answer is correct and why. Remember, you must be able to explain why you chose your answer.*
- ❑ Examples of items: Would you rather congregate with your friends in a dank place or a stifling place? Explain why. What has caused the most torment in your life? What gave you relief from the torment? Name 3 things that commonly arouse a teacher's anger.

(continued)

OVERVIEW OF WEEK 7 ACTIVITIES: *IMMIGRANT KIDS AT HOME* (continued)

Cognate activity (example of directions to teacher)

- ❑ Say, *Remember that when you are learning another language, it sometimes helps to look for similarities in how words sound or are spelled. If you were in a country or neighborhood where all the signs were in Spanish, which word would you look for if you wanted to find a police station?* Teléfono, policia, or parque? *Who remembers what words are called that have similar spellings in English and Spanish and are related in meaning? Remember, there are also false cognates. False cognates are words that have similar spellings in English and Spanish, but are NOT related in meaning. Does anyone remember a false cognate? What does the Spanish word red mean? Red means net in Spanish!*
- ❑ If this appears to be too difficult for your students, you may need to work as a whole group and look for the cognates on the text transparency. You might emphasize the cognates as you read.
- ❑ Say, *For this activity I will give each team a passage to read. Your job is to look for the words that have Spanish cognates. When you find a word that you think is a cognate, write the word and the Spanish cognate on the worksheet. Discuss the meanings of the Spanish cognates you find to make sure that they do have the same meaning as the English word in the fable.*
- ❑ When all teams have completed their worksheets, collect the worksheets and write the words and their cognates on the board.
- ❑ Ask students for meaning of both words to decide if they are true or false cognates.
- ❑ Prompt for additional clues if students have not found them all.

DEPARTMENT OF HEALTH & HUMAN SERVICES

Program Support Center
Financial Management Portfolio
Cost Allocation Services

1301 Young Street, Room 732
Dallas, TX 75202
PHONE: (214) 767-3261
FAX: (214) 767-3264
EMAIL: CAS-Dallas@psc.hhs.gov

April 23, 2015

Charles Maimone
Vice Chancellor for Business Affairs
University of North Carolina - Greensboro
254 Mossman Building
Greensboro, NC 27412-5001

Dear Mr. Erwin:

A copy of a facilities and administrative (F&A) cost Rate Agreement is being faxed to you for your signature. This Agreement reflects an understanding reached between your organization and a member of my staff concerning F&A rates that may be used to support your claim for these indirect costs on grants and contracts with the Federal Government.

Please have the Agreement signed by an authorized representative of your organization and fax or email it to me, retaining the copy for your files. Our fax number is (214) 767-3264 and email address is theodore.foster@psc.gov . We will reproduce and distribute the Agreement to the appropriate awarding organizations of the Federal Government for their use.

The Office of Management and Budget (OMB) has requested that we reach an agreement with each institution on components for the published F&A cost rates. The attached form(s) are provided for that purpose. Please sign the form(s) and return them with an agreement.

An F&A together with supporting information is required to substantiate your claim for F&A costs under grants and contracts awarded by the Federal Government. Thus, your next F&A proposal based on actual costs for the fiscal year ending June 30, 2018 is due in our office by December 31, 2018.

Sincerely,

Arif Karim
Director
Cost Allocation Services

Enclosures

COLLEGES AND UNIVERSITIES RATE AGREEMENT

EIN: 1566001468A1

ORGANIZATION:

University of North Carolina at Greensboro

254 Mossman Building

Greensboro, NC 27412-5001

DATE:04/23/2015

FILING REF.: The preceding agreement was dated 01/09/2015

The rates approved in this agreement are for use on grants, contracts and other agreements with the Federal Government, subject to the conditions in Section III.

SECTION I: INDIRECT COST RATES

RATE TYPES: FIXED FINAL PROV. (PROVISIONAL) PRED. (PREDETERMINED)

	EFFECTIVE PERIOD				
TYPE	**FROM**	**TO**	**RATE(%)**	**LOCATION**	**APPLICABLE TO**
FINAL	07/01/2013	06/30/2014	43.50	On-Campus	Organized Research
FINAL	07/01/2013	06/30/2014	55.40	On-Campus	Instruction
FINAL	07/01/2013	06/30/2014	43.70	On-Campus	Other Sponsored Activities
FINAL	07/01/2013	06/30/2014	26.00	Off-Campus	All Programs
PRED.	07/01/2014	06/30/2019	45.50	On-Campus	Organized Research
PRED.	07/01/2014	06/30/2019	55.50	On-Campus	Instruction
PRED.	07/01/2014	06/30/2019	45.50	On-Campus	Other Sponsored Activities
PRED.	07/01/2014	06/30/2019	26.00	Off-Campus	All Programs
PROV.	07/01/2019	06/30/2021			Use same rates and conditions as those cited for fiscal year ending June 30, 2019.

*BASE

Modified total direct costs, consisting of all direct salaries and wages, applicable fringe benefits, materials and supplies, services, travel and up to the first $25,000 of each subaward (regardless of the period of performance of the subawards under the award). Modified total direct costs shall exclude equipment, capital expenditures, charges for patient care, rental costs, tuition remission, scholarships and fellowships, participant support costs and the portion of each subaward in excess of $25,000. Other items may only be excluded when necessary to avoid a serious inequity in the distribution of indirect costs, and with the approval of the cognizant agency for indirect costs.

SECTION I: FRINGE BENEFIT RATES**

TYPE	FROM	TO	RATE(%)	LOCATION	APPLICABLE TO
FIXED	7/1/2014	6/30/2015	2.70	All	Permanent Faculty & Staff
FIXED	7/1/2014	6/30/2015	0.70	All	Non-Permanent Temporary & Student Employees
FIXED	7/1/2015	6/30/2016	2.60	All	Permanent Faculty & Staff
FIXED	7/1/2015	6/30/2016	1.00	All	Non-Permanent Temporary & Student Employees
PROV.	7/1/2016	6/30/2018	0.00		Use same rates and conditions as those cited for fiscal year ending June 30, 2016.

** DESCRIPTION OF FRINGE BENEFITS RATE BASE:

Salaries and wages.

SECTION II: SPECIAL REMARKS

TREATMENT OF FRINGE BENEFITS:

The fringe benefits are charged using the rate(s) listed in the Fringe Benefits Section of this Agreement. The fringe benefits included in the rate(s) are listed below.

TREATMENT OF PAID ABSENCES

Vacation, holiday, sick leave pay and other paid absences are included in salaries and wages and are claimed on grants, contracts and other agreements as part of the normal cost for salaries and wages. Separate claims are not made for the cost of these paid absences.

OFF-CAMPUS DEFINITION: For all activities performed in facilities not owned by the institution and to which rent is directly allocated to the project(s), the off-campus rate will apply. Actual costs will be apportioned between on-campus and off-campus components. Each portion will bear the appropriate rate.

This organization uses fringe benefits for estimating direct fringe benefit costs on grant applications and contract proposals. The following fringe benefits are covered by the fringe benefits listed in Section I: Worker's Compensation, Unemployment, Accrued Leave payouts at Termination and Severance, Short-Term Disability, and Employee Assistance Program.

For cash claims and final reporting purposes, the following fringe benefits are specifically identified to each employee and charged individually as direct costs: FICA/Medicare, Health Insurance and Retirement.

Equipment means an article of nonexpendable tangible personal property having a useful life of more than one year, and an acquisition cost of $5,000 or more per unit.

The next fringe benefit proposal for the fiscal year ending June 30, 2015, will be due in our office by December 31, 2015. The next indirect cost rate proposal based on actual costs for the fiscal year ending June 30, 2018 is due in our office by December 31, 2018.

SECTION III: GENERAL

A. LIMITATIONS:

The rates in this Agreement are subject to any statutory or administrative limitations and apply to a given grant, contract or other agreement only to the extent that funds are available. Acceptance of the rates is subject to the following conditions: (1) Only costs incurred by the organization were included in its facilities and administrative cost pools as finally accepted: such costs are legal obligations of the organization and are allowable under the governing cost principles; (2) The same costs that have been treated as facilities and administrative costs are not claimed as direct costs; (3) Similar types of costs have been accorded consistent accounting treatment; and (4) The information provided by the organization which was used to establish the rates is not later found to be materially incomplete or inaccurate by the Federal Government. In such situations the rate(s) would be subject to renegotiation at the discretion of the Federal Government.

B. ACCOUNTING CHANGES:

This Agreement is based on the accounting system purported by the organization to be in effect during the Agreement period. Changes to the method of accounting for costs which affect the amount of reimbursement resulting from the use of this Agreement require prior approval of the authorized representative of the cognizant agency. Such changes include, but are not limited to, changes in the charging of a particular type of cost from facilities and administrative to direct. Failure to obtain approval may result in cost disallowances.

C. FIXED RATES:

If a fixed rate is in this Agreement, it is based on an estimate of the costs for the period covered by the rate. When the actual costs for this period are determined, an adjustment will be made to a rate of a future year(s) to compensate for the difference between the costs used to establish the fixed rate and actual costs.

D. USE BY OTHER FEDERAL AGENCIES:

The rates in this Agreement were approved in accordance with the authority in Office of Management and Budget Circular A-21, and should be applied to grants, contracts and other agreements covered by this Circular, subject to any limitations in A above. The organization may provide copies of the Agreement to other Federal Agencies to give them early notification of the Agreement.

E. OTHER:

If any Federal contract, grant or other agreement is reimbursing facilities and administrative costs by a means other than the approved rate(s) in this Agreement, the organization should (1) credit such costs to the affected programs, and (2) apply the approved rate(s) to the appropriate base to identify the proper amount of facilities and administrative costs allocable to these programs.

BY THE INSTITUTION:	ON BEHALF OF THE FEDERAL GOVERNMENT:
University of North Carolina at Greensboro	DEPARTMENT OF HEALTH AND HUMAN SERVICES
(b)(6)	(AGENCY) Darryl W. Mayes -S Digitally signed by Darryl W. Mayes -S DN: c=US, o=U.S. Government, ou=HHS, ou=PSC, ou=People, 0.9.2342.19200300.100.1.1=2000131668, cn=Darryl W. Mayes -S Date: 2015.05.07 09:01:29 -04'00'
(SIGNATURE)	(SIGNATURE)
Charles A. Maimone	for Arif Karim
(NAME)	(NAME)
Vice Chancellor of Business Affairs	Director, Cost Allocation Services
(TITLE)	(TITLE)
May 19, 2015	4/23/2015
(DATE)	(DATE) 0311

HHS REPRESENTATIVE: Theodore Foster

Telephone: (214) 767-3261

Budget Narrative File(s)

*** Mandatory Budget Narrative Filename:** 1239-He_Budget_narrative.pdf

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Budget Narrative

1. Personnel: $ 919,151
Year 1 = $194,523; Year 2 = $176,910; Year 3 = $163,165; Year 4 = $173,951; Year 5 = $210,602

Senior Personnel Budgeted Effort		Person Months (PM) and Percent Effort during Academic Year and Summer (AY and SU) Per Year				
		Year 1	Year 2	Year 3	Year 4	Year 5
Ye He	PM	4.90	3.74	2.45	2.44	4.90
(9-mo base)	AY	25%	25.0%	12.5%	12.5%	25.0%
(3-month summer base)	SU	67%	33%	33%	33%	67%
Melody Zoch	PM	2.12	1.88	1.88	1.88	2.12
(9-mo base)	AY	12.5%	12.5%	12.5%	12.5%	12.5%
(3-month summer base)	SU	33%	25%	25%	25%	33%
Jamie Schissel	PM	2.12	1.88	1.88	1.88	2.12
(9-mo base)	AY	12.5%	12.5%	12.5%	12.5%	12.5%
(3-month summer base)	SU	33%	25%	25%	25%	33%
Jeanette Alarcon	PM	1.90	1.65	1.20	1.20	1.65
(9-mo base)	AY	10.0%	10.0%	5.0%	5.0%	10.0%
(3-month summer base)	SU	33%	25%	25%	25%	25%

Lead PI: Ye He, PhD. Dr. He will oversee the design, implementation, and evaluation of the project in close collaboration with Co-PIs and evaluation team, leading team meetings and coordinating efforts of university and district partners. She will lead the planning and delivery of the professional development (Goal 1) specifically and will oversee Teacher Education (TE) course and program development and approval processes. She will work closely with the evaluation team to implement the evaluation plan for the project and utilize ongoing evaluation feedback for project design. In addition to oversight of the programming activities, Dr. He will be involved in fiscal management of the project, working closely with the Project Manager and university central sponsored programs offices to maintain compliance with award conditions.

Dr. He is budgeted at the effort listed in the table above, calculated using her current 9-month salary base plus projected 3% cost-of-living increase = $78,924 in Year 1 with 3% increase to base salary continued for each subsequent year. Summer percentages are based on the 3-month allocation derived from the 9-month salary base.

Co-PIs: Melody Patterson Zoch, PhD and Jeannette Alarcón, PhD. Drs. Zoch and Alarcón will co-lead the development and implementation of the ESL/DL SAC program for Elementary Education majors, in addition to supporting other project goals. Dr. Zoch will lead the course and program development with the support from Dr. Alarcón. Together, their responsibilities will include leading the ESL/dual language (DL) second academic concentration (SAC) program development (Goal 2), advising preservice teachers in the ESL/DL SAC program, consulting with district coordinators to place preservice teachers in ESL and DL classrooms, supporting preservice teachers' engagement in parent, family and community engagement activities (Goal

4), and supporting the dissemination of project findings through technical reports, conference presentations, and peer-reviewed publications.

Drs. Zoch and Alarcón are budgeted at the effort listed in the table above, calculated using their current 9-month salary base plus projected 3% cost-of-living increase (Zoch = $68,950 and Alarcón = $68,506 in Year 1 with 3% increase continued for each subsequent year). Summer percentages are based on the 3-month allocation derived from the 9-month salary base. Budgeted effort for Dr. Alarcón is slightly lower than other Co-PIs. Dr. Alarcón will assist Dr. Zoch in program development, but will not be developing any additional courses or PD materials for the proposed project.

Co-PI: Jamie Schissel, PhD. Dr. Schissel will lead the development and implementation of ESL/DL add-on licensure program (Goal 3) and support all other project goals. Her responsibilities will include: developing TED 6XX - ESL/DL Language Assessment, leading the ESL/DL add-on licensure program development (Goal 3), working with school district coordinators to identify and advise inservice teachers for the ESL/DL add-on licensure program, consulting with district coordinators to provide inservice teachers with ESL and DL classroom teaching and learning opportunities, supporting inservice teachers' engagement in parent, family and community engagement activities (Goal 4), and supporting the dissemination of project findings through technical reports, conference presentations, and peer-reviewed publications.

Dr. Schissel is budgeted at the effort listed in the table above, calculated using her current 9-month salary base plus projected 3% cost-of-living increase = $68,435 in Year 1 with 3% increase to base salary continued for each subsequent year. Summer percentages are based on the 3-month allocation derived from the 9-month salary base.

Project Manager (TBD). A full-time Project Manager (PM) will be hired at project start-up (Year 1 = $40,000; actual salary will be determined by a formal job description and approval by UNCG Human Resources) to support programmatic activities and to ensure good fiscal management of project funds consistently throughout the 5 years. Due to the size and scope of project activities, the dedicated PM will be embedded in the department and program, available to project staff, faculty, GAs, students and partners as a single point of contact. The PM will help schedule and organize meetings, order and prepare recruitment and program materials, update the project website and program materials as needed, and work with the evaluation team to maintain the project database. The PM will also provide support by processing scholar costs (tuition and fees, scholar travel, project funds, and incentives) and other expenditures (project personnel payments, staff travel, supplies, etc.).

In addition to other regular duties, the PM will provide monthly budget reports to the project team for planning purposes. This person will be the administrative point of contact for the School of Education post-award coordinator, who will provide training and support during start-up.

Graduate Assistant (GA) for Programming. A graduate student from the department of Teacher Education and Higher Education will support co-PIs and district coordinators to design and deliver project activities. The GA will provide support in field experience placement,

supervision, and the evaluation of teacher candidates' disposition and teaching performance. They will also facilitate regular seminars to provide support for mentor teachers, preservice teacher participants, inservice teacher participants, and graduates from the revised TESOL and elementary education programs. Salary and fringe is budgeted for each year of the project for GA positions for academic year and summer.

Project Evaluator: Jill Chouinard, PhD. Dr. Chouinard will lead evaluation activities for the project with support from a Graduate Research Assistant from her department. She will lead the design and administration of program instruments, oversee the establishment and maintenance of the project database, and prepare annual evaluation reports, presentations to stakeholders and final project report.

Dr. Chouinard is budgeted for one summer month each year (equivalent to 1 PM, calculated using her current 9-month salary base plus projected 3% cost-of-living increase = $78,897 in Year 1 with 3% increase continued for each subsequent year. Her summer salary amount is hased on the 3-month allocation derived from the 9-month salary base.

Graduate Assistant (GA) for OAERS Evaluation. A Graduate Assistant will be assigned to the project to assist Dr. Chouinard to carry out all evaluation activities in terms of data collection, data analysis, and reporting.

Project Evaluators: Bryan Hutchins, PhD. Dr. Hutchins, external evaluator with the SERVE Center, will focus on the evaluation of the impact analysis of student outcomes. Dr. Hutchins will work closely with Dr. Chouinard and Dr. He to manage the design, sampling, data collection, data analysis, and reporting on project impact.

Dr. Hutchins is budgeted for 20% effort in Year 1, 10% in Year 2, 5% in Year 3, 15% in Year 4, and 20% in Year 5. Effort is weighted heavily in Years 1 and 5 for development of the evaluation design in Year 1 and analysis and repotting in Years 4 and 5. Salary amounts are derived using Dr. Hutchins' current 12-month salary base plus 3% cost-of-living increase starting in Year 1.

A 3% cost-of-living increase is included for faculty and non-student staff.

2. Fringe Benefits: $238,165
Year 1 = $51,063; Year 2 = $45,298; Year 3 = $40,812; Year 4 = $44,422; Year 5 = $56,570

Fringe rates are calculated using the composite rates of 33% for faculty, 37% for staff, .4% for students enrolled during the academic year and 8.05% for unenrolled students during the summer.

3. Travel: $58,000 ($11,600 per year)

PER DIEM MEAL ALLOWANCES	In-State	Out-of-State
Breakfast	$8.30	$8.30
Lunch	$10.90	$10.90
Dinner	$18.70	$21.30
Total	**$37.90**	**$40.50**

Travel to Project Director's meeting. Co-PI travel to annual Project Director's meeting is included at $1,200 per person (3 Co-PIs) for flight (estimated $400), per diem meals (estimated $200, reimbursed at institution approved rates) and costs for lodging in the Washington, DC area (estimated $600). Total $1,200 per person = $3,600. Estimates are based on a 4-day trip.

Travel to Professional Conference. Attendance at a professional conference (TBD) each year is included (3 Co-PIs) for dissemination. Budgeted costs are conference registration (estimated $500) and membership (estimated $200; purchased as a package), transportation (flight estimate $500), per diem meals (estimate $200) and lodging costs (estimate $600). Estimates are based on a 4-day trip.

Project Staff travel to School sites. Funds are included for project staff to be reimbursed for mileage to and from WSFCS and GCS schools. PIs and the evaluation team will attend project team meetings during Year 1 and have regular meetings at the districts to collect ongoing feedback, engage in school-based activities and report project progress. Costs are estimated for 4 staff members with a budget of $500 per year for mileage (approximately 230 miles each). Mileage rate is fifty-four cents (53.5¢) per mile.

4. Equipment: N/A

5. Supplies: $38,300
Year 1 = $33,000; Year 2 = $1,700; Year 3 = $1,200; Year 4 = $1,200; Year 5 = $1,200

Instructional and Program Materials. Materials such as notebooks, binders, and presentation supplies are included in the budget at $1,000 in Year 1 and $500 in Years 2-5. Program supplies are included at $1,000 in Year 1 and $500 in Years 2-5, to include program organizational and data management supplies.

Recruitment Materials. A budget of $1,000 in Year 1 and $500 in Year 2 is allocated for recruitment materials and promotional items to hand out at orientation events, purchased in bulk mostly in Year 1. These items will be embellished with a program logo, and promotional items will be of functional use (items such as pens or flash drives, etc.).

Computers and peripherals. Funds are included to purchase 3 laptop computers for project staff (Co-PI's, Project Manager, Graduate Assistant), to be utilized solely for project activities and to keep data stored securely (estimate 3 @ $1,300 = $3,900 in Year 1), one devoted printer with ink cartridges ($500 in Year 1, $200 per year in Years 2-5), flash drives and external hard drives ($600).

Technology for Hub Schools. Funds are allocated to provide iPad Mini machines for the 10 hub schools (50 units @$500 each). This will not only allow teachers to use the mobile device in instruction, but also facilitate remote supervision by university teacher educators. In addition, parents will be able to check out units to participate in engagement activities.. The units will be collected from schools at the end of the project and housed with the UNCG Teaching Resource Center technology inventory, available for check-out by students in teacher education.

6. Contractual: $17,500
Year 1 = $10,500; Year 2 = $2,500; Year 3 = $1,500; Year 4 = $1,500; Year 5 = $1,500

Web site development. Funds are allocated ($5,000 in Year 1, $2,000 in Year 2 and $1,000 in Years 3-5) for a project web site to be developed and maintained. The web site will facilitate recruitment as well as provide relevant and up-to-date information for scholars enrolled in the program. This work will be contracted, and estimates are calculated at 40 hours of work in Year 1 to develop and 15-20 hours in Years 2-5 for maintenance, at a rate of $50 per hour.

Subscription to SoftChalk. To develop online learning activities, a subscription to SoftChalk software will be purchased ($500 per year). SoftChalk is the leading provider of content authoring software for educators in K-12, colleges, universities and medical programs.

Evaluation data fee. Funds are included to pay the one-time NCERDC fee of $5,000. The NCERDC contains de-identified data from the NCDPI on the state's public schools, students, and teachers. The datasets allow linking between students and teachers. We will use these data to identify the analytic sample and to assess academic performance, targeted services status, and attendance for the purpose of project evaluation.

This project will follow the procedures for procurement under 34 CFR Parts 74.40 - 74.48 and Part 80.36.

7. Construction: N/A

8. Other: $224,082
Year 1 = $39,050; Year 2 = $46,053; Year 3 = $45,875; Year 4 = $46,319; Year 5 = $46,785

Teacher incentive payments. As part of the evaluation design, teachers will provide feedback on aspects of the program. For Goal 1, teachers will complete surveys at several time points and provide feedback on teacher placements. Goal 1 teacher incentives are budgeted for 30 teachers per year (4 cohorts) at $600 ($18,000 in Years 2-5). For Goal 2, mentor teachers will receive incentive payments to participate in scholar field experience, completing surveys and providing feedback to the project at multiple time points (36 teachers @ $100 each in Years 2-5 = $3,600 each year).

Parent incentive payments. Parent participation in program and assessment activities is essential, and they will receive incentive payments to enhance accessibility to the program. Funds are

allocated for 30 parents in Year 1 at $500 each to participate in the planning team, and 300 parents in Years 2-5 ($50 each) to participate in the parent engagement program activities.

Planning team incentive payments. Experienced educators (lead teachers, teachers, principals, curriculum facilitators) will be selected to form 3 project focus groups to provide feedback on professional development modules, teacher education programs, and family and community engagement activities. These focus groups will allow their feedback to be integrated into the curriculum design. Funds are budgeted at $15,000 ($1,000 each) for 15 teachers in Year 1 (5 people per team). The amount allocated for these incentives may vary, depending on participation level.

Printing. Funds for printing are allocated (Years 1 and 2 = $1,000 and Years 3-4 = $400) to create and produce high-quality recruitment materials, reports, and classroom materials (high-volume documents).

GRA tuition, fees and insurance. Funds are included to support the program Graduate Assistant tuition and fees. Costs are estimated for full-time, in-state tuition costs (Year 1 = $8,050 per student/academic year with 5% increase each year).

9. Total Direct Costs: $1,495,198
Year 1 = $ 339,736; Year 2 = $284,061; Year 3 = $264,152; Year 4 = $278,992; Year 5 = $328,257

10. Indirect Costs: $116,058
Year 1 = $26,535; Year 2 = $22,049; Year 3 = $20,422; Year 4 = $21,574; Year 5 = $25,478
MTDC totals Year 1 = $331,686; Year 2 = $275,609; Year 3 = $255,277; Year 4 = $269,673; Year 5 = $318,472
The UNCG federally negotiated rate is 45.5% for on-campus activities. For this grant, the 8% training grant rate is applied (based on the MTDC).

11. Training Stipends: $897,918
Year 1 = $63,048; Year 2 = $211,061; Year 3 = $264,843; Year 4 = $240,438; Year 5 = $118,528

Tuition and Fees.

- Goal 2 ESL/Dual Language Second Academic Concentration (SAC) for preservice elementary teacher education candidates: Undergraduate tuition and fees are included for scholar costs; 5% increase is projected in Years 2-5. Tuition is calculated using the In-State rate; out-of-state students will receive the In-State tuition contribution.

Goal 2 ESL/SAC	Year 1	Year 2	Year 3	Year 4	Year 5
12 scholars each year	$36,048	$111,876	$158,208	$125,208	$41,928
18 total credit hours per scholar					

- Goal 3 ESL/Dual Language add-on licensure program for inservice teachers with enhanced family and community-based field experiences. Graduate tuition and fees are

included for scholar costs; 5% increase is projected in Years 2-5. Tuition is calculated using the In-State rate; out-of-state students will receive the In-State tuition contribution.

Goal 3 ESL licensure	Year 1	Year 2	Year 3	Year 4	Year 5
a) ESL					
10 scholars each year	$18,000	$48,710	$53,110	$58,020	$36,840
9 total credit hours per scholar					
b) Dual add-on licensure					
5 scholars each year	$9,000	$34,875	$37,925	$41,610	$24,160
15 total credit hours per scholar					

Student Project Funds. Students will be encouraged to engage in projects relevant to their program. Funds are allocated for projects ($6,000 will allow 12 students at approximately $500 each in Years 2-5).

Student Conference Travel. Funds are allocated for students to attend a professional conference Students will apply for travel funds from the available amount each year ($9,600 will allow 12 students at approximately $800 each in Years 2-5).

12. Total Costs: $2,509,174
Year 1 = $429,319; Year 2 = $517,171; Year 3 = $549,417; Year 4 = $541,004; Year 5 = $472,263

Student/Trainee costs are approximately 38% of total direct costs.