Putting the Pieces Together:
Applied Strategies for the Submitting Grant Applications to the Institute of Education Sciences

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Introductions & IES Grant History

Three funded research grants:

- ***Exploring Writing Instruction Delivered by Teachers Providing Services to Students with Disabilities*** (Ciullo PI; Collins Co-PI; Graham Co-PI*; 2018-2022)

- ***Writing in Middle School Science and Social Studies: Exploring Instruction and Support for Students with Disabilities*** ([Project Explore] Mason PI*; Ciullo & Collins Co-PI; 2019-2023)

- ***Comprehensive Meta Analysis of Writing Interventions for Grades K to 5*** (Collins PI; Ciullo Co-PI; Graham- Co-PI*; 2020-2022)

IES Awards

IES Project Type	Maximum Duration		Maximum Cost
Measurement	4 years		$2,000,000
Exploration	4 years		$1,700,000
Development and Innovation	4 years		$2,000,000
Initial Efficacy and Follow-Up	Initial Efficacy: 5 years		$3,800,000
	Follow-Up: 3 years		$1,500,000

Source:
Institute of Education Sciences (IES), U.S. Department of Education (2020). *Request for Applications. CFDA 84.305A & 84.324A*

Agenda

1. Project Types
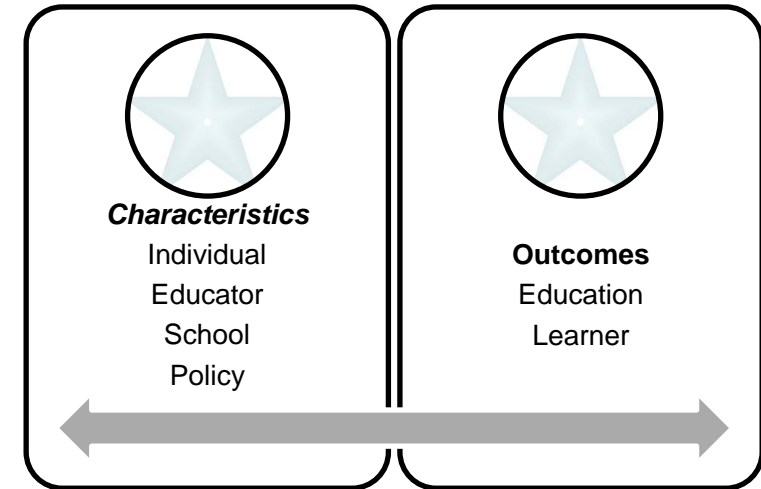2. Research Questions and Project Activities

LUNCH BREAK

1. Theoretical / conceptual framework
   1. Examples and non examples
2. Build and refine your team
   1. Bio Sketches
   2. What holes need new staff

Exploration

Projects that **identify educational relationships**

May also explore factors outside of education settings that influence these relationships.

Results help to identify areas for further attention from researchers, policymakers, and practitioners.

➢ ***Under Exploration, IES does NOT support work to develop an intervention or to test the causal impact of an intervention.***

Characteristics
Individual
Educator
School
Policy

Outcomes
Education
Learner

Exploration: Example

Exploring associations among observed instruction, self-reported teacher factors, and student writing performance comprise the four aims of Project Explore (see Figure 1).

Aim 1: Develop an understanding of typical writing instruction in inclusive science and social studies classrooms.

Aim 2: Develop an understanding of teacher consistency in delivering writing instruction to a new group of students.

Aim 3: Explore potential associations among observed malleable factors (evidence-based responsive practices), teacher factors (training and attitudes toward adapting instruction), and the writing performance of students with disabilities.

Aim 4: Explore explanations for observed instruction relative to teacher self-reported preferences for writing instruction and adapting instruction for students with disabilities.

Project Explore Improving knowledge about science and social studies writing for students with disabilities

Figure 1. AIMS of Project Explore

Development & Innovation

Projects support the development and pilot testing of **new or modified education interventions** that are intended to produce beneficial impacts on learner outcomes.

Results in a **fully developed intervention**, evidence of the intervention's theory of change, and data that speak to the intervention's feasibility, fidelity of implementation, costs, and promise for improving learner outcomes.

➢ *Projects that include minimal development activities and focus on testing an intervention's impact should NOT be submitted under Development & Innovation.*

Development & Innovation: Example

PI: Toste, Jessica

Project Activities: An iterative development process will be used to design and refine the EXPERT intervention.

➢ **In Year 1**, we will investigate current practices in DBDM among special education and general education teachers through a detailed observation phase using direct observation, focus groups, and preliminary data collection.

➢ **In Year 2,** a single-case design study will be used to test changes in teachers' behaviors while participating in the EXPERT intervention.

➢ **In Year 3,** feasibility of the EXPERT intervention will be explored through a pretest-posttest single-group design study.

➢ **In Year 4**, we will conduct a randomized controlled trial pilot study by comparing teacher and student outcomes based on participation in the EXPERT intervention versus standard practice professional development.

Initial Efficacy & Follow-Up: Part 1

Projects of initial efficacy of education interventions using designs that meet the IES What Works Clearinghouse (WWC) design standards.

Projects **test interventions that need rigorous evaluation** to examine the intervention's beneficial impact on education outcomes *in comparison to an alternative practice, program, or policy*.

Results provide practical information about the benefits and costs of specific interventions to inform the theory of change, implementation, usefulness for education personnel, and future research.

➢ **Projects focused on interventions not yet fully developed and need more than 6 months of development should NOT** *be submitted under Initial Efficacy.*

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Initial Efficacy & <u>Follow-Up</u>: Part 2

Follow-Up projects test the **longer term impact of an intervention** that has been shown to have beneficial impacts on education outcomes _in a previous or ongoing evaluation study._

Initial Efficacy & Follow-Up: Example

PI: Wanzek, Jeanne

Purpose The project aims to test the efficacy of the Leveled Literacy Intervention (LLI) Intermediate in third and fourth grade.

Researchers will conduct a **randomized control trial** to examine:

(a) the efficacy of LLI Intermediate for third grade students with reading difficulties or disabilities relative to a business-as-usual comparison group,

(b) the efficacy of an intensive implementation of LLI Intermediate over 2 years (3rd and 4th grade),

(c) short- and long-term outcomes to determine whether the effects are educationally meaningful to students

(d) moderators of student response to intervention.

Measurement

Projects support the **development and validation of new assessments** OR **refinement and validation of existing assessments** for specific purposes, contexts, and populations.

May address measuring educator knowledge, skills, and abilities; guiding instruction; improving educator practice; evaluating educator job performance; or the effectiveness of schools and educational systems.

Results in a valid assessment for use by education personnel (including researchers) to measure learner outcomes for specific populations and contexts.

➤ **Projects that aim to establish an assessment framework before developing and validating a proposed assessment tool should NOT be submitted under Measurement.**

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Measurement: Example

TITLE: Project SCREEN: Validation of a Free-Access Screening Tool for K-12 Educators to Screen Students for Internalizing and Externalizing Behavior Patterns

CENTER: NCSER   **YEAR:** 2019

PRINCIPAL INVESTIGATOR: Lane, Kathleen   **AWARDEE:** University of Kansas

PROGRAM: Social, Emotional, and Behavioral Competence [Program Details]

AWARD PERIOD: 3 years (07/01/2019-06/30/2022)   **AWARD AMOUNT:** $1,399,959

TYPE: Measurement   **AWARD NUMBER:** R324A190013

DESCRIPTION:

Co-Principal Investigator: Oakes, Wendy

Project Activities: The research team will conduct a series of studies that involves collecting new data in the first year of the grant and analyzing these and existing data from *SRSS-IE* studies conducted to date. Five sets of analyses will be conducted including (1) measurement invariance to ensure that the same internalizing and externalizing constructs are being measured across specified groups (gender, race/ethnicity, disability status, and grade level); (2) internal consistency to determine how well the *SRSS-IE* is measuring targeted behaviors across items, subscales, and student ability levels; (3) classification accuracy to compare the accuracy of *SRSS-IE* screening to results obtained using other established and well-researched screening tools; (4) convergent validity of the *SRSS-IE* with other validated screening measures and predictive validity of the tool with other year-end indicators of academic, behavioral, and social outcomes; and (5) existence of any bias with respect to gender, ethnicity/race, and disability status.

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Your turn!

1. Decide on a project type based on your overall research aims.

2. Draft potential research questions and project activities

Exploration	Development & Innovation
Initial Efficacy & Follow-Up	Measurement

IES Project Types
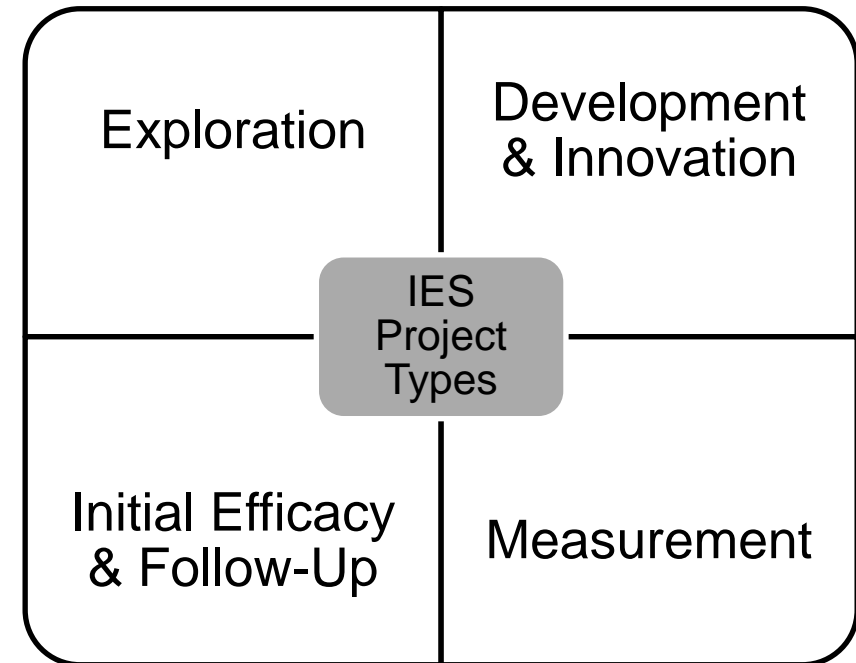
Part 2
Theoretical Frameworks

- Proposals include one of the following

  - A conceptual framework (exploration and measurement)

  - A Theory of Change (TOC): (development and initial efficacy and follow up)

- **Strong proposals** include a figure within the Significance section (Part A) and describe the framework in the narrative (*Note.* Reviewers are not required to score figures in the Appendix).

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Conceptual Framework

- A visual representation of anticipated relationships between variables in a proposed study. Conceptual frameworks are included in exploration (and sometimes measurement) proposals.

- The figure should illustrate how all relevant study variables relate to each other based on theory or empirical evidence.

- Moderating variables and mediating variables are included.

Theory of Change (TOC)

- A visual representation of how a proposed change (e.g., more multiplication problems solved correctly) will occur.

- A strong TOC includes each independent variable, other possible explanatory (or moderating / mediating variables), and dependent variables outcomes.

- A TOC *'"illustrates contextual factors that an affect a causal chain"* (USDOE, 2014).

Source: US Department of Education (2014) Guide for Policymakers and Researchers.
http://ies.ed.gov/ncee/edlabs

Conceptual Framework Example (Exploration)
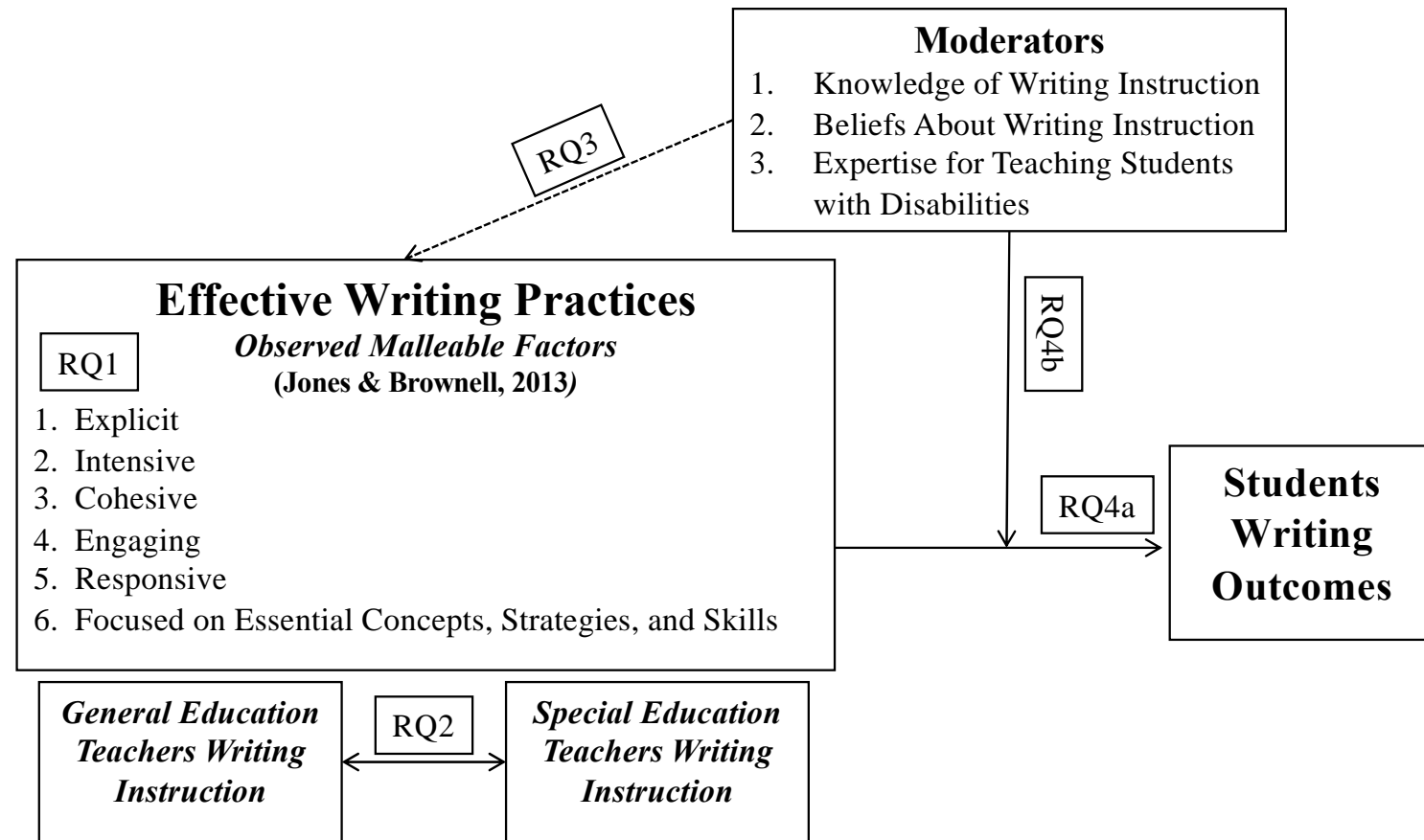
Figure 1. Conceptual framework depicting associations to be explored in this investigation of writing instruction for teachers who support students with disabilities.

Conceptual Framework Example (Exploration)
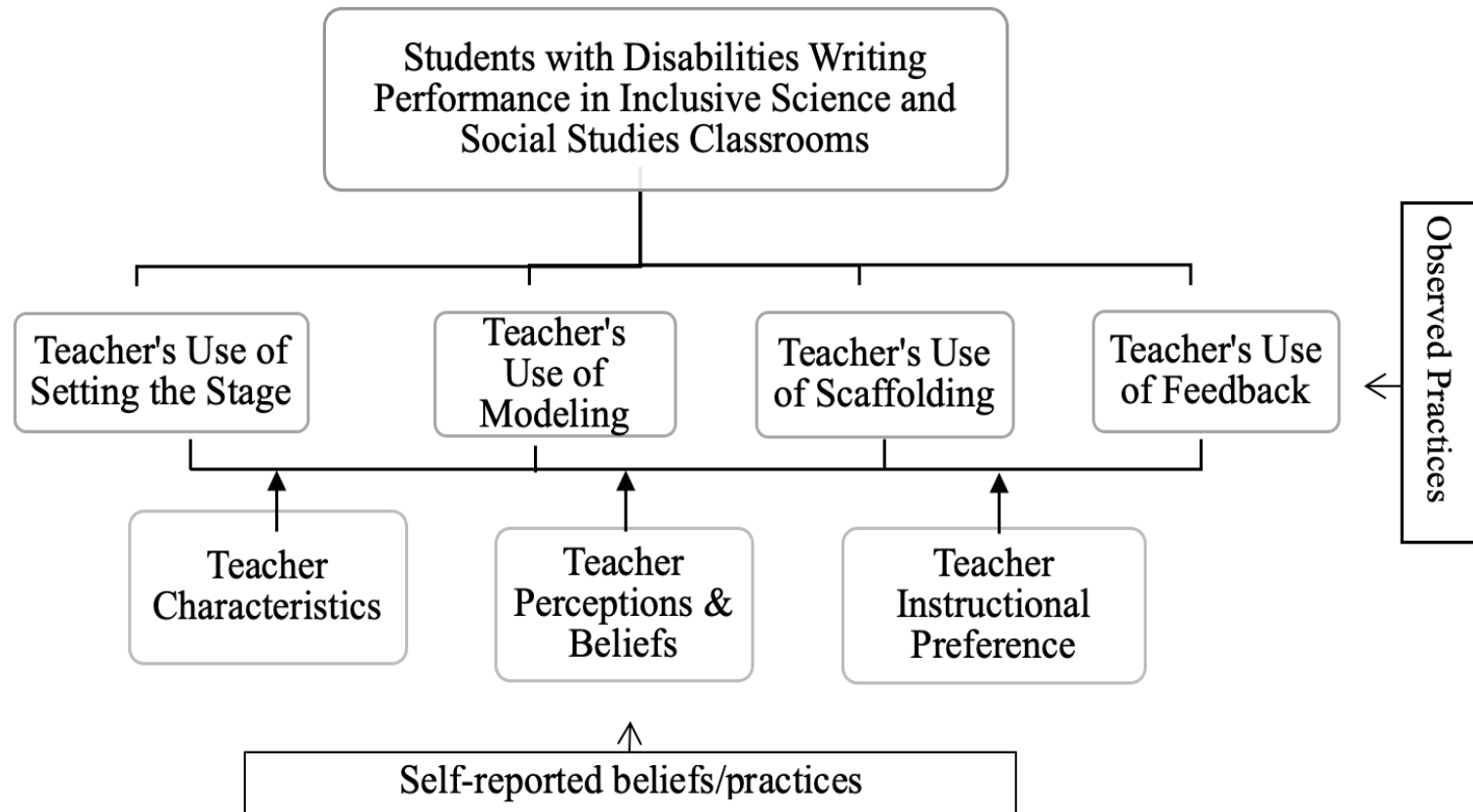
Figure 2. Project Explore Conceptual Framework

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Conceptual Framework Example
(Exploration: Meta-Analysis)

Note. *Inclusion of reading competence as an exploratory control variable in the models will depend upon how frequently such data is reported.

Figure 1. Conceptual framework depicting the exploration of what writing interventions are effective in Grades K-5 on what writing outcomes, for whom, and under what conditions.

Building a Balanced Team

Questions to consider when building your team:

❖ Who will contribute **content** expertise?

❖ What specialized **methodological** expertise is needed?

❖ What **percentage of time** should each team member dedicate to the project?

❖ What other specialized areas are needed for the **specific project** (e.g., technology).

❖ What are the specific **responsibilities** of each team member?

Consultants or Advisory Boards: Be Specific

⊞Appendix C.3: *Consultant Expertise and Activities*

Consultant *Institution*	Expertise & Qualifications	Dedicated Time & Individual Project Activities
Ryan Williams *American Institutes of Research (AIR)*	• PI on a previous IES Exploration Meta-Analysis investigating heterogeneity in mathematics intervention effects (Award R305A170146) • Currently serving as Co-PI on the IES Meta-Analysis Training Institute (MATI, Award R305B170019) • Extensive expertise in meta-analytic quantitative methods.	*5 days per project year* • Consultation to refine systematic literature search and screening procedures. • Provide feedback on coding manual and related methodological procedures. • Consultation on exploratory data analysis methods and interpretation of results for dissemination.
Carol Booth Olson *University of California, Irvine*	• Currently serving as PI on the IES WRITE Center for Secondary Students (Award R305C190007) • Co-author on What Works Clearinghouse (WWC) elementary writing practice guide (Graham et al., 2012; 2018) • Director of the UCI/National Writing Project	*3 days per project year* • Review reference list of eligible studies and assist with locating additional studies, including studies conducted with ELLs. • Make recommendations for how findings may inform teacher professional development programs. • Provide suggestions on how findings may inform writing intervention development and innovation projects.
Karen Murphy *Penn State University*	• Currently serving as Editor of *Review of Educational Research* • PI on previous IES Development and Innovation project to develop the *Quality Talk* reading comprehension intervention (Award R305A130031)	*3 days per project year* • Consultation to refine systematic literature search and methodological coding procedures. • Provide feedback on manuscripts and presentations for dissemination to research audiences. • Provide suggestions on how findings may inform writing intervention development and innovation projects.

Bio Sketches

An opportunity to extend the Personnel
section to describe how each researcher is qualified
to successfully implement the proposed project.

IES Resources

Database of funded IES Research Grants:
https://ies.ed.gov/funding/grantsearch/index.asp

Funding Opportunity Webinars:
https://ies.ed.gov/funding/webinars/index.asp

Video depicting a panel review discussion of a grant proposal:
https://www.youtube.com/watch?v=42xGsGIrqJk

Hands-on Practice

Project Type	Research Questions/Project Aims	Project Activities
Selected Project Type:	1.	• •
Key Elements of Project Type: ⇒ ⇒	1.	• •
	1.	• •
⇒ ⇒ ⇒	1.	• •