Understanding and Disseminating Non-Significant Findings

November 9, 2023

WELCOME AND INTRODUCTIONS

U.S. Department of Education

Dr. Sonji Jones-Manson
U.S. Department of Education
Education Innovation and Research (EIR)
Program Officer

Dr. Elizabeth Albro
U.S. Department of Education
Commissioner, National Center for Education Research
Institute for Education Sciences

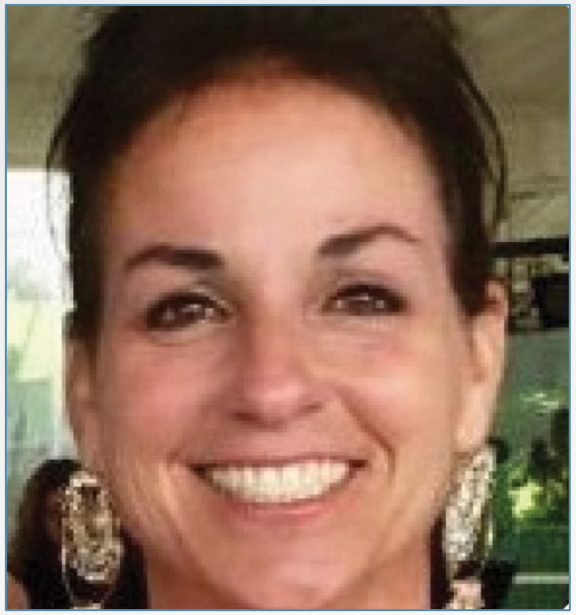
Facilitator

Dr. Ben Harper
Senior Project Director
AnLar, LLC

EIR Grantee Panelists

Cindy Hoisington
Project Director
Education Development Center
Waltham, MA

Jennifer Stevens
President & CEO
Virginia Ed Strategies



Caryn Henning
Managing Director of Programming and Implementation
Children's Literacy Initiative

Agenda

Time	Activity
1:00	Welcome and Objectives
1:05	Opening Comments from EIR Program Office
1:10	Guidance from IES
1:35	Grantee Panel Presentation
2:05	Panel Discussion and Q&A

Webinar Objectives

- Learn the EIR requirements for evaluation
- Hear how design decisions may affect the likelihood of having significant (or non-significant) findings
- Discover how long it takes for an intervention to show positive effects
- Learn resources and pathways for disseminating non-significant findings
- Hear from EIR grantees who have faced and overcome challenges in disseminating non-significant research findings

Comments from the Program Office

EIR Program comments

Reflections on What We Can Learn from Non-Significant Findings

Elizabeth Albro, PhD
Commissioner
National Center for Education Research

EIR TA Webinar
November 9, 2023

All Findings Matter

- As an evidence-building community, we need to share everything we are learning
- The file drawer problem is real, but each of you has a role to play in moving what you are learning from the file drawer into shared evidence
- A p-value only provides one piece of the evidence and knowledge-building puzzle

Why Is Your Finding Non-Significant?

1. Lack of treatment contrast

Two examples:

- Reading instruction in the early grades
- Social and character development programs

Recommendation:

1. Build in time/expertise/resources to examine what is happening in 'business-as-usual' or other comparison conditions

2. Implementation challenges

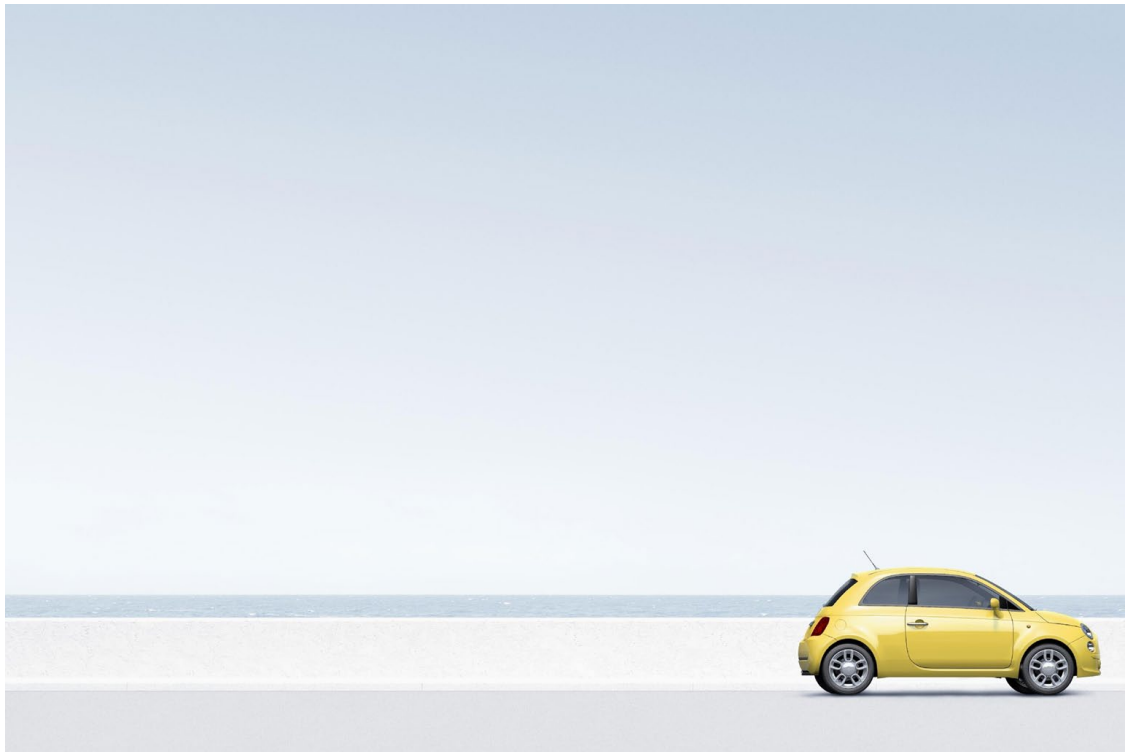
- Asking anyone to do something new comes with challenges
- Many interventions need more professional development time and resources than initially envisioned
- Implementation and recruitment challenges are often linked
- Pilot studies can surface implementation challenges before a full efficacy trial

3. Characteristics of the outcomes measured

- Sometimes the measure you are using isn't measuring the construct you were intending it to measure
- Do you know what you should be measuring? What does your logic model tell you?
- Is the measure intended to pick up proximal, 'distimal' or distal change?

4. Study was underpowered

- Studies may be designed to be fully powered, but then lose sample due to recruitment or other challenges



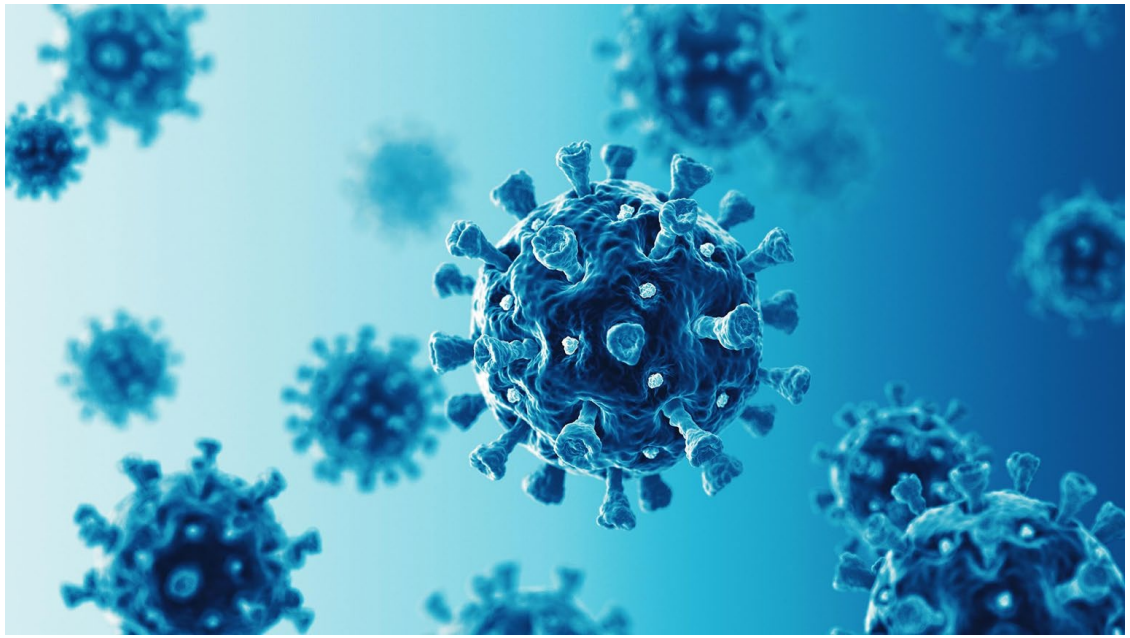
5. When outcomes were measured

- Immediately
- At a short delay
- Multiple months later
- Years later

6. Theory of change was incorrect

- Revisit your theory of change with all the information and data that you have available from your completed study
- Is there something critical you didn't account for in your initial theory?

7. Historic and disruptive events



- Hurricanes
- Floods
- COVID

8. Intervention is not effective

- While people often start with this conclusion when they get a non-significant finding, a single study with a single non-significant finding is insufficient evidence to support that conclusion

Some Analytic Considerations

Consider the BASIE Framework

- BAyeSian Interpretation of Estimates
- An alternative to null hypothesis significance testing
- Guide available here: https://ies.ed.gov/ncee/pubs/2022005/

Plan and Document

- Have you identified the core components of your intervention?
- What do you know about the treatment contrast?
- What do you know about how long it takes for educators to be able to fully implement the intervention you are testing?
- What range of outcome measures do you plan to collect? What questions will each set of measures help you to understand?

Disseminating Non-Significant Findings

Findings are More Than a p-value

- Set your study in a place and time
- Describe the context and setting of the study
- Address the why
- Embrace mixed methods

Share What You Are Learning

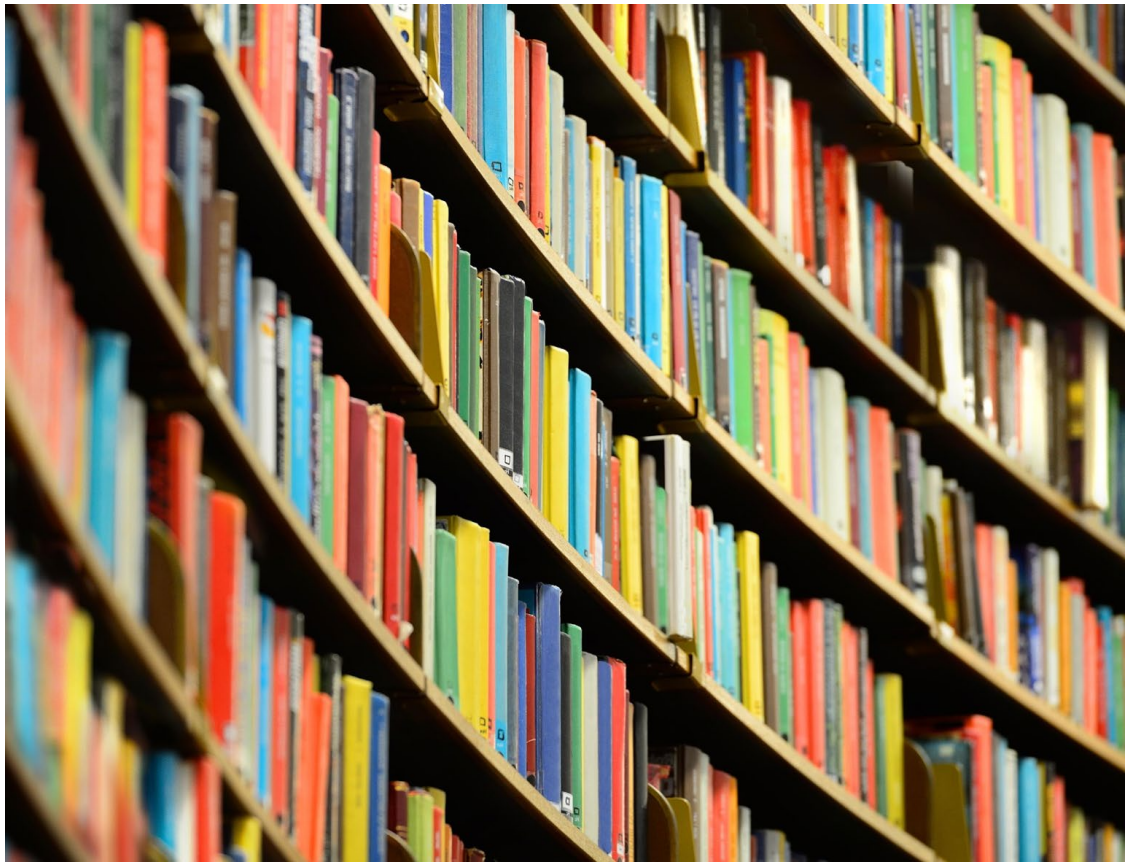
Think about your body of research and how it informs your discussion of a single study

- PALS Scale-Up Study
- Findings Shared in *Educational Researcher*

Identify publications that emphasize publishing rigorous research independent of nature of findings

- *Journal of Research on Educational Effectiveness*

Always Submit Your Findings to ERIC



- https://eric.ed.gov/submit/

Education and Special Education Research Grant Programs and Funding Opportunities

https://ies.ed.gov/funding

How to Identify Funding Opportunities

- Sign up for the IES Newsflash
- Funding opportunities are announced in *The Federal Register*
- Find the funding opportunities page of the IES website
- Review current Requests for Applications (RFAs)
- Contact relevant Program Officer(s)

For Questions and More Information

Elizabeth Albro, PhD
Commissioner, National Center for Education Research
Elizabeth.Albro@ed.gov

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EIR Grantees

Literacy and Academic Success for English Learners through Science (LASErS)

Cindy Hoisington

Literacy and Academic Success for English Learners through Science (LASErS)

Investing in Innovation (i3)
Early Phase EIR
(2014-2018)

"To harness the combined power of school, home, and community, and the engaging context of science to bolster language, literacy, and academic outcomes for young English learners"

Partners:

- Education Development Center
- Connecticut Science Center
- Hartford Public School
- Hartford Foundation for Public Giving
- Graustein Memorial Fund

Components

Overarching Goal

Improved literacy and academic outcomes for English Learners (ELS) in Hartford

Short and Long term Goals

- **Integrated program of supports for Els, across contexts, grades, and content domains**
- **Increased system-wide capacity**
- **Model and recommendations for state-wide scale up**

Key Components

- **Professional Development (PD) for Teachers**
- **PD and Supports for Coaches**
- **Family Supports**
- **Leadership Alliance**

LASErS Components

1: Professional Learning for Teachers

- Focus on building pedagogical content knowledge in science
- Instructional sessions and online resources
- Coaching
- Online PLCs

2: Coaching supports

- Participate in PL sessions along with teachers
- Coaching protocols
- Virtual supports:
- Webcasts
- Resource Library

3: Family Supports

- Home Activity suggestions
- Tip sheets for supporting inquiry with children
- School-based family events
- Summer family events at the CSC

4: Leadership Alliance

- Key LASErS staff, state and district leaders, and experts support sustainability and make recommendations for statewide scale-up
- Quarterly updates
- Provide input
- Plan for knowledge transfer
- Identify lessons learned

Evaluation Questions: Yale Child Study Center

1. Do **students** in schools participating in LASErS have greater (a) language/literacy proficiency and (b) overall academic achievement compared to a comparable sample of students from non-LASErS schools?
2. Do **teachers** in schools participating in LASErS demonstrate increased quality of language/literacy facilitation in their classrooms?
3. Do **coaches** in schools participating in LASErS demonstrate increased capacity for coaching?
4. Do **schools** participating in LASErS demonstrate increased integration of learning in the classroom and home?
5. Do **families** whose students are in schools participating in LASErS demonstrate greater engagement with school and community resources?
6. Is LASErS being **implemented with fidelity**?

Evaluation Findings

Implementation Fidelity

- Challenges to teacher participation in PL sessions and coaching
- Variability in the quantity and quality of classroom implementation and family engagement efforts

Impact on Student Achievement

- Positive impacts on ELs' test scores in Grade One
- Positive impacts on non- ELs' test scores in PreK and K
- No positive impacts on ELs' test scores in PreK and K

Inferences about Root Causes

- Science as a Challenging Subject
- Inherent Challenges with Engaging ELs
- Mismatch between Programmatic Approach and Social-Emotional Learning Climate in Classrooms

Dissemination: Publications

Teacher-facing articles

- Hoisington, C. & Winokur, J. (November 2019). *Teaching teachers: Let's talk about it!* Science and Children. (57)4.
- Hoisington, C., & Winokur, J. (February 2018). *Science Professional Development for the 21st Century; New strategies to transform your PD*. Science and Children (55) 6.
- Hoisington, C. (January 2018). Webinar: *STEM, Supporting Dual-language Learners*. STEM-X Webinars. https://m.youtube.com/watch?v=_L9Q3XI6_YY (double-feature with STEM on Stage, Akua Kouyate-Tate (Woftrap)

References LASErS:

- McClure, E., Guernsey, L., Clements, D., Bales, S., Kendall-Taylor, N., &Levine, M. contributing authors: Hoisington C. & Ashbrook, P. (March 2017). *STEM starts early; Grounding science, technology, engineering, and mathematics education in early childhood.*

Multiple Presentations including PEER (Partnership for Early Education Research) , New America panel, NSTA (CT and national), NAEYC, NAEYC PLI, ECSTEM, HS Region 9 STEM Institute, Keefe-Bruyette, ConnTESOL, MCELA, and NALEO (National Association of Latino Elected & Appointed Officials)

Dissemination: Videos

Instructional videos and classroom videos for teachers: ECscienceexploration on YouTube

Examples:

- Setting up a snail terrarium with children
- Exploring garden snails with young children
- Observing and housing mealworms and mealworm beetles
- Planting peas and other seeds with children
- Planting garlic (and other stuff) with children
- Teacher investigates and talks with children about earthworms

Foundations of Science Literacy WEBSITE (still a work in progress)

2 videos:

- Early Childhood Science at Education Development Center
- Teaching and Learning Science in the Early Years; All about Doing, Thinking, and Talking

Hartford Foundation for Public Giving video on YouTube:

- Exploring Science with Young Children

Dissemination: Sustaining and Scaling

Statewide Impacts

- Knowledge Transfer event attended by CT DOE, CT OEC, Capital Region Education Council (CREC) school district, HFPG, Graustein Foundation, and our i3 liaison.
- Hartford public school adopted the LASErS Pre-K model over two subsequent years
- CSC ramped up their Pre-K PL and coaching in Hartford and surrounding towns
- CSC adapted K-3 programming to incorporate more open exploration and strategies for adult facilitation of inquiry

Subsequent PL Work in CT

- 4-hour PL for family childcare providers (in English and Spanish) thru the Hartford Foundation (EDC)
- 9-hour PL for preschool teachers in Fairfield County through Cooperative Educational Services (EDC)
- Weeklong summer Inquiry Institute and fall session with East Hartford K-Grade 2 teachers and coaches (CSC/EDC)

Supporting Science Inquiry, Interest, and STEM Thinking for Young Dual-Language Learners (SISTEM) NSF ITEST

Incorporates, builds on, and extends learning from LASErS with increased focus on:

- Science pedagogy in favor of teacher content knowledge
- Explicit strategies for supporting language: POLL (Espinosa)
- Concrete curriculum supports: PEEP and the Big Wide World
- Specific links to cross-domain learning and standards
- Bringing teachers and families together for co-learning
- Inviting teachers' families to CSC events
- Program administrator commitment to engagement in all components
- Direct coaching support for teachers via zoom meetings and PLCs
- Providing resources for connecting with families
- Gradual release to teachers and programs for initiating/sustaining family partnerships

Virginia Ed Strategies

Jennifer Stevens

VIRGINIA
ED STRATEGIES

Our Background

- 501c3 nonprofit organization
- $45m+ in private and federal funding

Our Mission

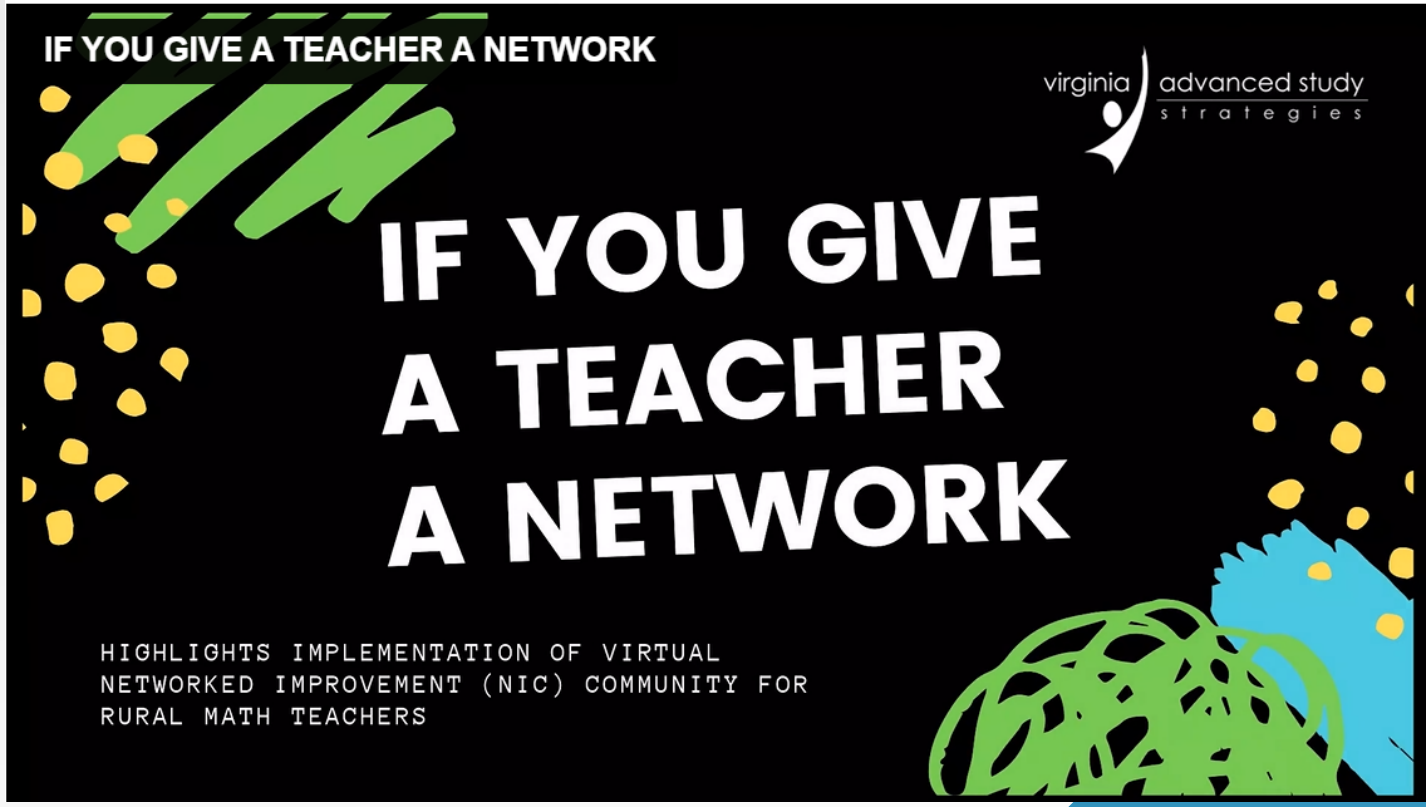
- Partnerships with K12 and community stakeholders
- Innovative solutions leading to prepared students

Rural Math Innovation Network (RMIN)

VIRGINIA ED STRATEGIES

- $2.9m I3 grant (FY2016)
- Virtual networked improvement community for rural math teachers
- SEL components in math
  - Growth mindset
  - Motivation
- 65+ Virginia teachers

- Key opportunities:
  - NSF STEM for All Video Showcase
  - State and national conferences
  - Expansion with VA Dept of Ed
  - New EIR grant (FY2020)



CHOICE in Professional Learning

- $10.8m EIR grant (FY2020)
- Studying the impact of giving teachers autonomy in PL
- 1000+ Virginia teachers
- Key opportunities:
  - Custom tools developed
  - Presentations - state and national
  - EIR webinars and meetings
  - EIR white papers
  - New partnerships

VIRGINIA ED STRATEGIES

CHOICE
PROFESSIONAL LEARNING BY CHOICE COMMUNITY

Children's Literacy Initiative

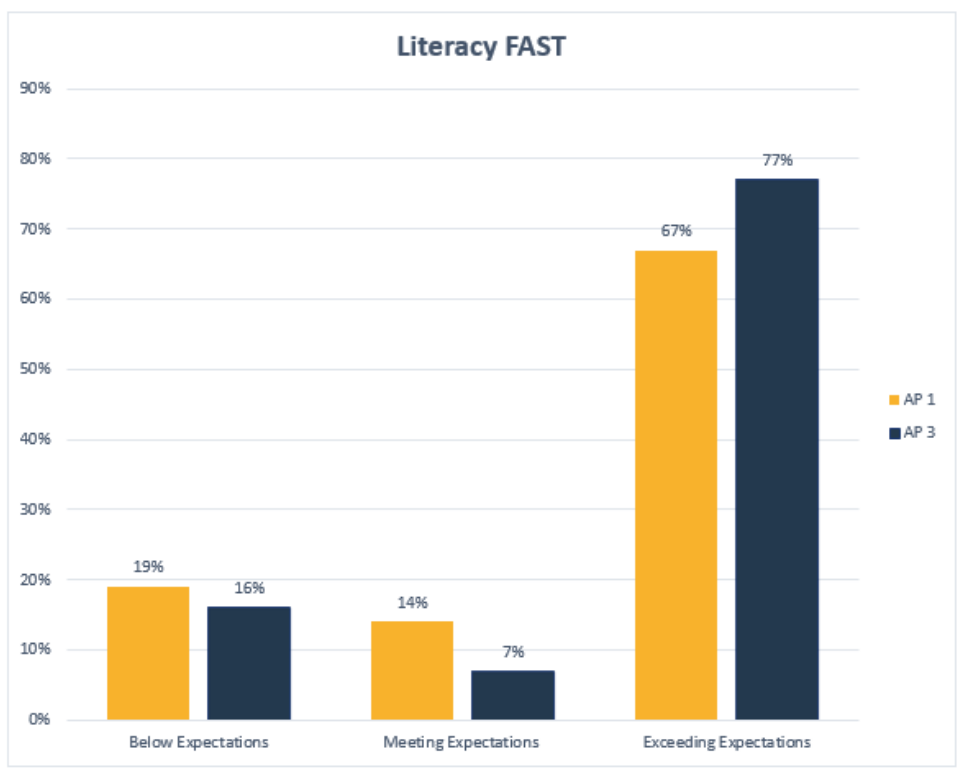
Caryn Henning

Dissemination Pathways

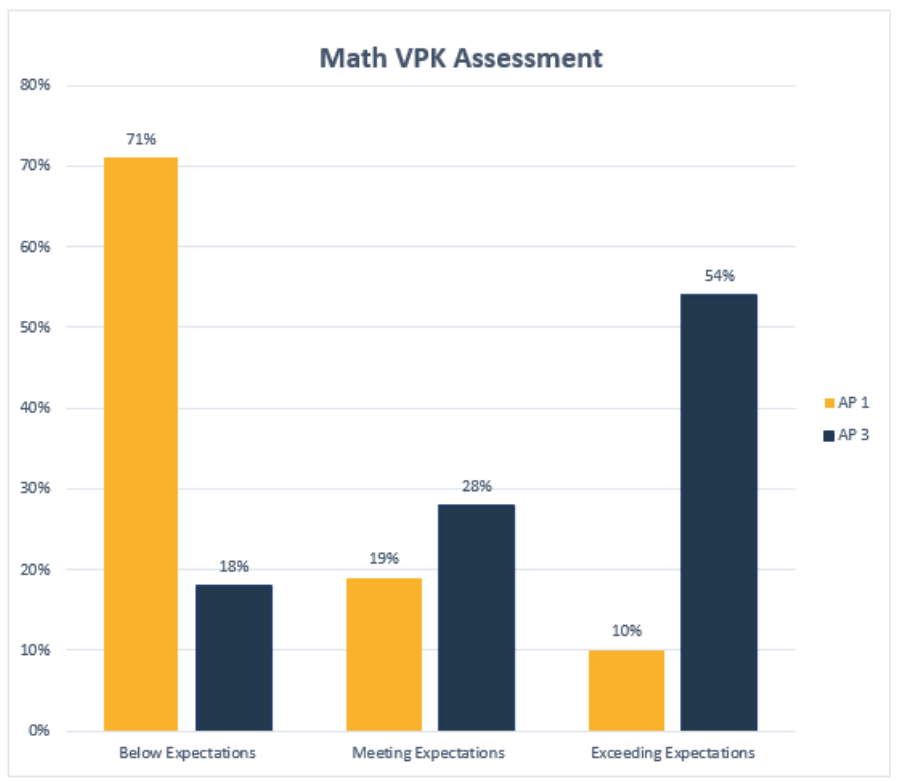
- Engaging stakeholders
- Additional research
- Education Blogs/Research Papers

Engaging Stakeholders

- Implementation of a new curriculum takes time to learn & practice
- Continued coaching supports for classrooms is essential & valued by teachers
- The understanding that all Early Childhood environments, programs, & teachers look different & need differentiation
- Curriculum and resources needs to address the unique, diverse needs of students, regardless of their linguistic and/or cognitive abilities.
- Embed strategies to attend for teacher turnover
- Address the flexibility and adaptability needed for teachers to implement multiple curriculums at the same time



84% of children meet or exceed expectations on the Literacy FAST



82% of children meet or exceed expectations on the Math VPK Assessment

- In 2022, CLI partnered with the Center on the Ecology of Early Development (CEED) at Boston University's Wheelock College of Education & Human
- CEED reviewed and evaluated ten teaching guides and related children's literature from CLI's current Pre-K curriculum using CEED's culturally responsive, anti-bias, and anti-racist (CRABAR) audit tool, the JEDI.

- Findings from the audit reveal that support a new Pre-K Curriculum in the following ways:
  - Instructional language that supports teachers in developing their own cultural competence as well as promotes a culture of academic success, and sociopolitical consciousness (Ladson-Billings, 2021) among the children and families they serve.
  - Ensure that there is consistent attention to the needs and strengths of multilingual
  - Ensure consistent attention to hearing and accessing the voices of all families.
  - Ensure that content and activities are developed through the lenses of windows and mirrors of the children

Questions?

RELEVANT RESOURCES FOR TODAY'S SESSION

- U.S. Department of Education EIR Program – https://oese.ed.gov/offices/office-of-discretionary-grants-support-services/innovation-early-learning/education-innovation-and-research-eir/

- Lemons, C.J., Fuchs, D., Gilbert, J.K., and Fuchs, L.S. (2014). Evidence-Based Practices in a Changing World: Reconsidering the Counterfactual in Education Research. Educational Researcher, 43(5): 242-252.

- Scheel, A.M., Schigen, M. R. J., and Lakens, D. (2021). An Excess of Positive Results: Comparing the Standard Psychology Literature with Registered Reports. Advances in Methods and Practices in Psychological Science, 4(2): 1-22. https://journals.sagepub.com/doi/full/10.1177/25152459211007467

- Study of Physical Science and Engineering Invention Kit Curriculum for Middle School: External Evaluation of the Investing in Innovation Central Virginia Advanced Manufacturing Development Grant 78. Making Research Relevant - https://eric.ed.gov/?id=ED611398

ADDITIONAL RESOURCES FOR TODAY'S SESSION

- Study of Physical Science and Engineering Invention Kit Curriculum for Middle School: External Evaluation of the Investing in Innovation Central Virginia Advanced Manufacturing Development Grant 78. Making Research Relevant - https://eric.ed.gov/?id=ED611398

Open Science Resources:

- *Sharing Study Data: A Guide for Education Researchers*, by Neild, Robinson, and Agufa (2022)

- View the archived webinar on *Sharing Study Data: A Guide for Education Researchers*

- Access the ERIC Grantee and Online Submission System

Thank You!