Elevating the Capacity of Classroom Experiences for Promoting Students' Learning and Development:
Observation and Improvement of Teacher-Child Interactions

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Discover. Create. Change.

Developmental science in school settings

- **Schools are settings for development – connecting an understanding of human development in context with schools/classrooms as contexts**

- **Understand and identify mechanisms of influence, then build systems to better harness potential of schools/classrooms as developmental assets**

- **Classrooms are the central focus/feature/leverage point – evidence from multi-level models of achievement and student report**

- **What are processes in classrooms that matter?**

Aims of today's talk

- **What experiences for social and cognitive development are offered to young students in classroom settings?**

- **Do interactions with teachers and experiences in classrooms matter for students?**

- **Can observation leverage efforts to improve the richness, quality, and effectiveness of experiences in classrooms?**

- **Can we use observation of teacher-student interactions to improve student learning?**

- **Further examination and extension in basic and applied scientific work**

Start with teachers and teaching

- **In U.S. right now a good teacher is a matter of luck.**

- **Tests show teachers/teaching are key, but tests cannot produce learning—posting scores, firing teachers won't help.**

- **Teachers can narrow gap by half or more/year. K-teacher can return up to $320,000 to a child she serves. Start early.**

- **U.S. districts spend between $2500 and $9,000/teacher/year on improvement. No evidence of impacts. Nor evidence of impact of advanced degrees, pay, etc.**

- **Move from luck to guarantee—the production of effective teaching. Scale is important—we need many effective teachers**

Improve quality, impact for young children

- **Poor children enter kindergarten far behind their peers, despite increased investment in HS and PK**

- **Even with universal access, learning gaps still exist. Need access to experiences of sufficient intensity to foster learning.**

- **Interactions between teachers and children are the ingredient that fosters learning and development; Interactions = Quality**

- **Issue is access *and* quality**

Child-adult relationships/interactions

- **Early history of relationships with adults forms "infrastructure" for school success:**
    - ❑ **Social competence with peers**
    - ❑ **Self-regulation, emotional self-control**
    - ❑ **Task orientation, persistence, following directions**
- **Readiness is, in part, a social process:**
    - ❑ **Interactions and relationships with teachers are a "medium"**
- **Relationships and interactions with teachers and caregivers determine quality and value of early education <u>and</u> are vehicles for improving readiness.**
- **Standardized, observational assessments**

Teacher-Child Interactions (these matter)
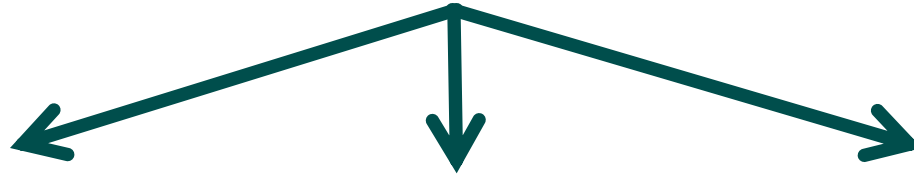
Emotional Support

Classroom Organization

Instructional Support

Measuring interactions: CLASS

- **CLASS is a tool for observing and assessing the quality of interactions between teachers and students**

- **Ratings (1-7) of the *emotional, organizational, and instructional supports* provided by teachers that contribute to children's *social, developmental, and academic achievement*.**

- **CLASS is used to assess interactions among teachers and students for a variety of purposes:**

  ❑ **Teacher Professional Development**

  ❑ **Monitoring and Evaluation of Teacher Performance/ Effectiveness**

  ❑ **Research**

Dimensions of interaction: CLASS PK-5

- **Positive climate**
- **Negative climate**
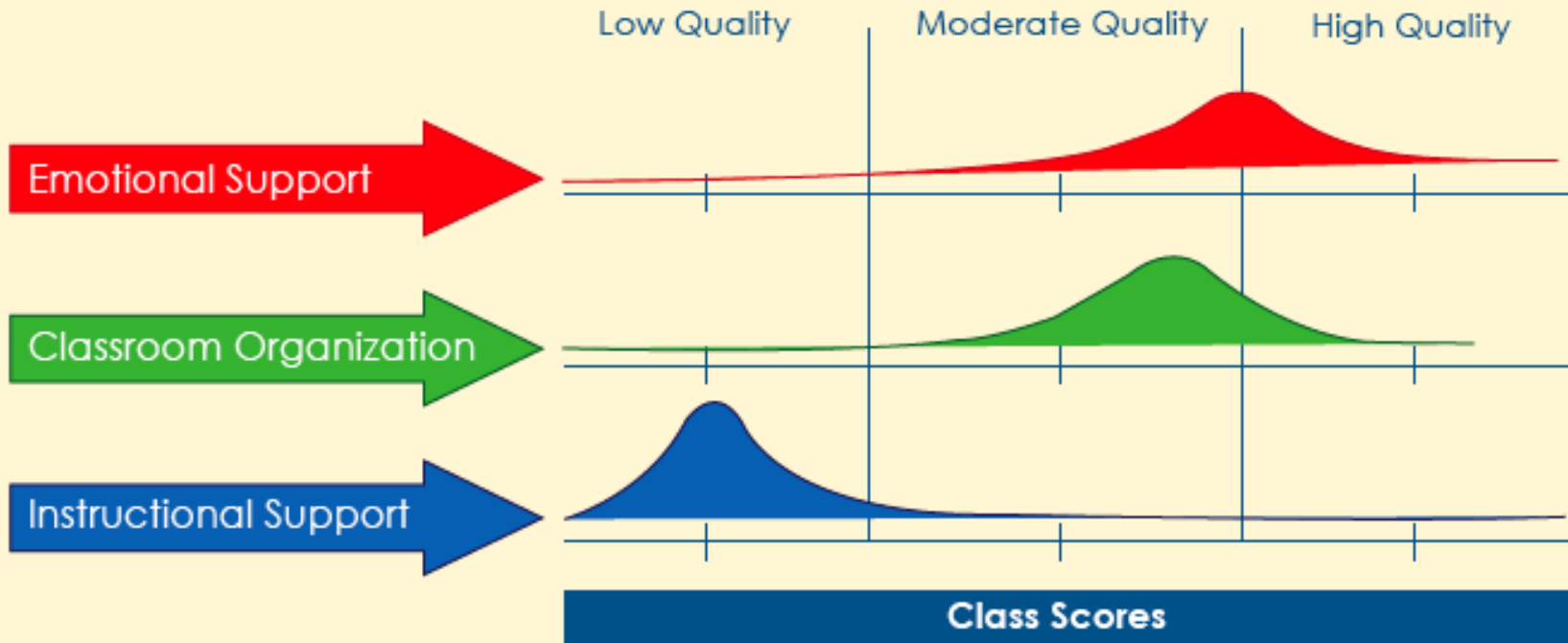- **Teacher sensitivity**
- **Regard for student perspectives**

Emotional Support

- **Effective behavior management**
- **Instructional learning formats**
- **Productivity**

Organization/ Management

- **Concept development**
- **Quality of feedback**
- **Language modeling**

Instructional Support

Observations at the population level in US early education

Interactions and children's PK development

	Emotional Support	Instructional Support	ECERS-R Total	Structural
Receptive Language		✔		
Expressive Language		✔	✔	
Rhyming		✔		
Letter Naming		✔		
Math Skills		✔		
Social Competence	✔			
Behavior Problems	✔			

Changes in children's development from beginning to end of preschool
Mashburn, et al. (in press)

Do effects of interactions in PK persist into K?

- **Yes, children in pre-k classrooms offering higher levels of Instructional Support displayed better language skills at the end of the <u>kindergarten</u> year.**

- **Kindergarten Instructional Support scores made an independent contribution to gains in children's language and math abilities.**
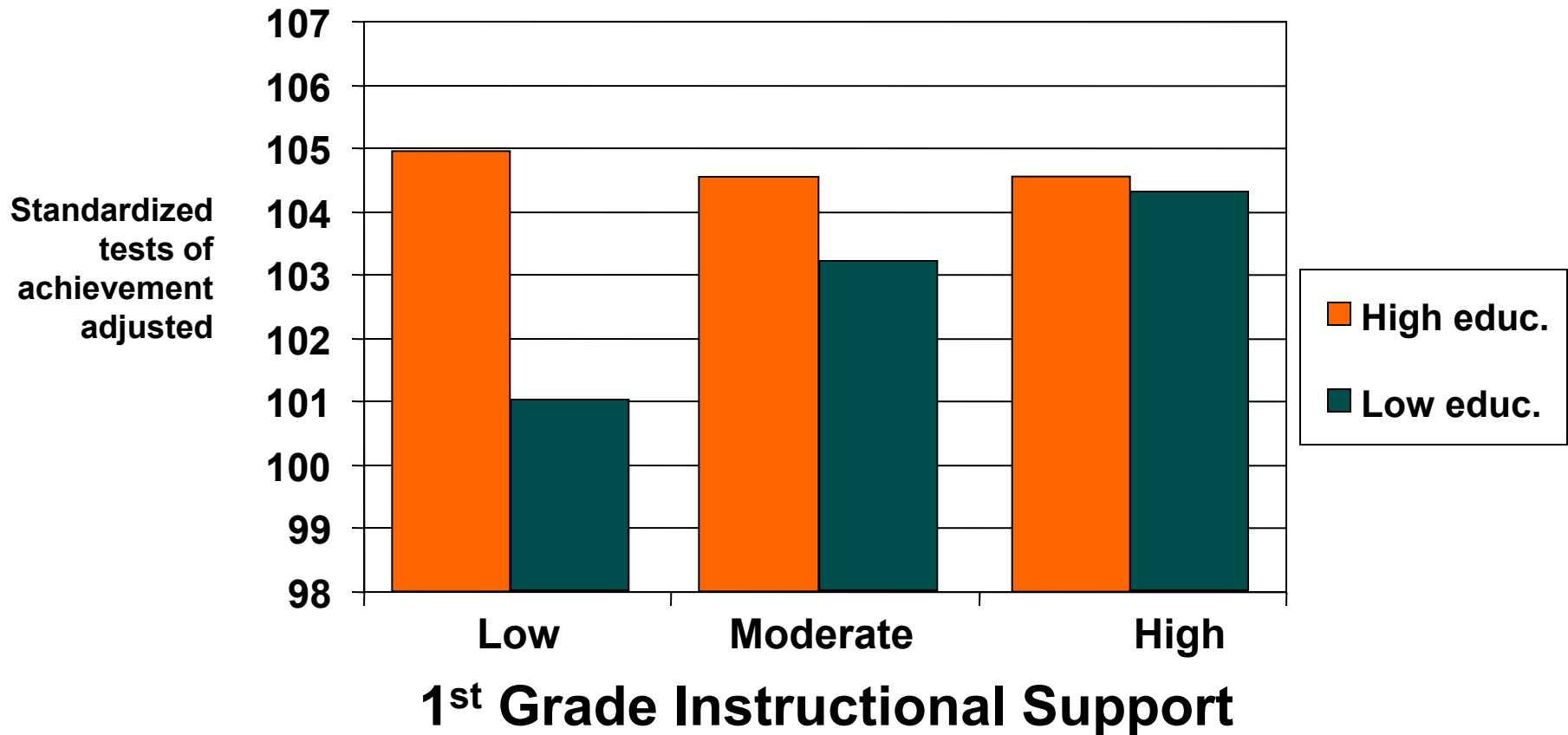
Is there an "active range" for effects?

- **Analysis of "thresholds" – points on distribution where impacts are evident**

- **Emotional Support – "5" and above**

- **Instructional Support – "2" and above**

- **For Instructional Support, the active range appears linked to teachers' support for children's cognitive skills**
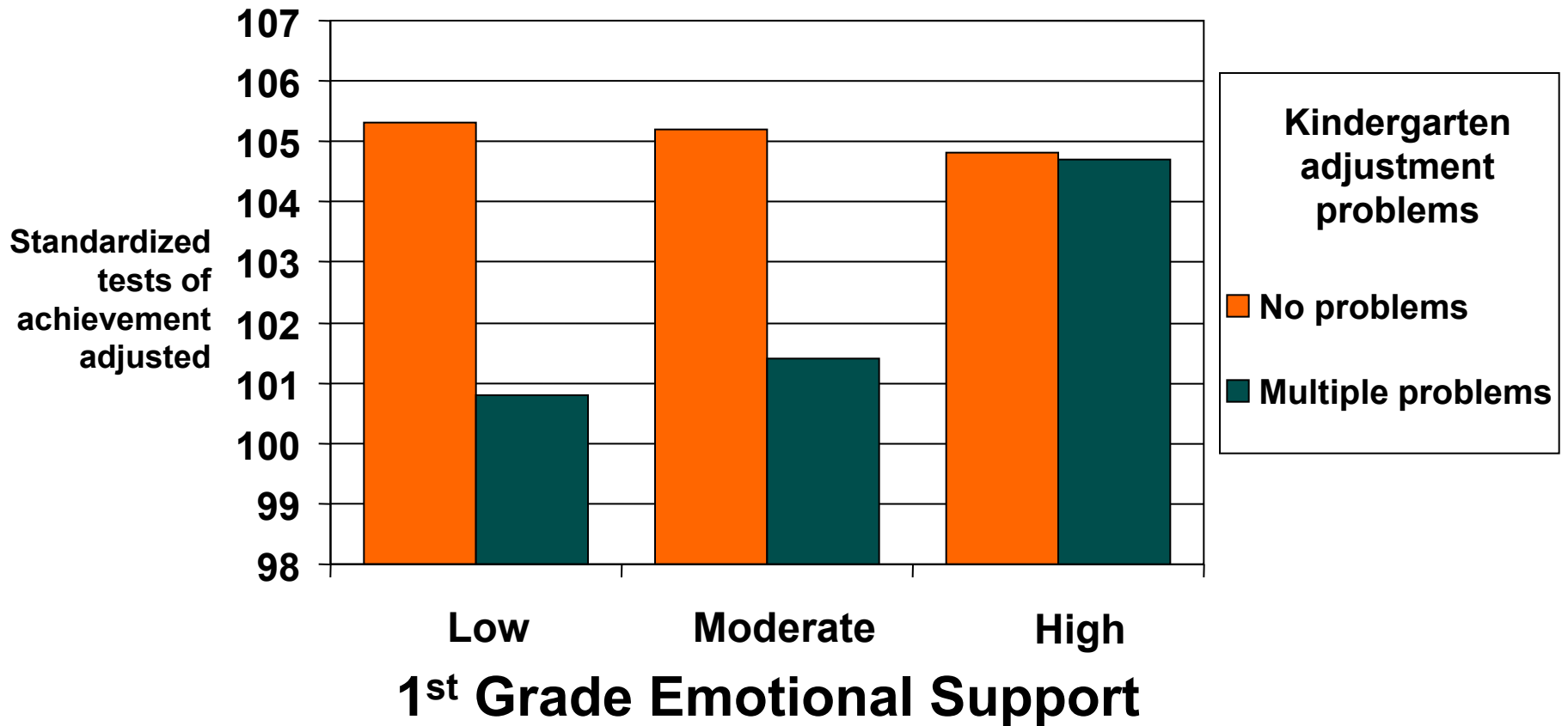
- **One-point shift appears meaningful**

Interactions are really important for...

...children from low-income families and those who have difficulty adjusting to classroom environments may particularly benefit from exposure to high-quality early learning environments as defined by the CLASS.

Gains in grade 1 achievement in instructionally supportive classrooms

Gains in grade 1 achievement in emotionally supportive classrooms

Standardized tests of achievement adjusted

Kindergarten adjustment problems

■ No problems

■ Multiple problems

Low   Moderate   High

1st Grade Emotional Support

Biological processes and interactions

- **Emotional sensitivity of teachers predicts decline in child stress hormones (cortisol) over the day and lower total (in context of typical rise in levels).**

- **Teacher stress reactivity predicts teachers' interactions and moderates effects of those interactions on child outcomes**

- **"Banking Time" intervention increases teacher sensitivity**

  - **Focused training for reading child cues**

  - **Seeing decrease in cortisol for both teachers and children**

  - **Increases in child engagement, affiliation, cooperation**

Interactions matter – Improve at scale

- **Specifically link inputs to teachers with their interactions with children**

- **CLASS – specific definitions of interactions**

- **Video Library – analysis of others' interactions**

- **Coaching – ongoing analysis/feedback on own interactions**

- **Course – knowledge and analytic skills**

- **All tested in RCTs**

CLASS Video Library

Welcome to our video library of CLASS constructs. Listed below are the 11 areas of CLASS that we have chosen to focus on and explain further through video demonstrations. You'll get a chance to view teachers interacting with their students in a real-life class setting, while displaying some of the positive behaviors we associate with the various CLASS categories.

Select from the pulldown or pick one of the main categories below.

CLASS Construct List
** **Use pulldown menu to select**

Positive Climate ▼

GO

Teacher Sensitivity	Positive Climate	Regard for Student Perspectives	Behavior Management
Productivity	**Concept Development**	**Instructional Learning Formats**	**Literacy Focus**
Quality of Feedback	**Children's Engagement**	**Language Modeling**	

CURRY SCHOOL of EDUCATION

1 **Classroom video recording at an established time**

2 **Consultant reviews and edits video clips**

3 **Teacher reviews clips and reflects on practice**

4 **Teacher and consultant meet and discuss teaching practices**

myteachingpartner.net

VIDEO CLIP 1 OF 2

Nice Work .

PROMPT #1:

When teachers anticipate and respond to students' academic, emotional, and social needs, they demonstrate Teacher Sensitivity. What do you see yourself doing in this clip that reflects your understanding of the difficulty the students may have in writing their personal narratives?

DIMENSION FOCUS:

Learn more about Teacher Sensitivity before reviewing this clip and submitting your response.
** *Clinking on this link should open up a new browser.*

<<<PLAY VIDEO :
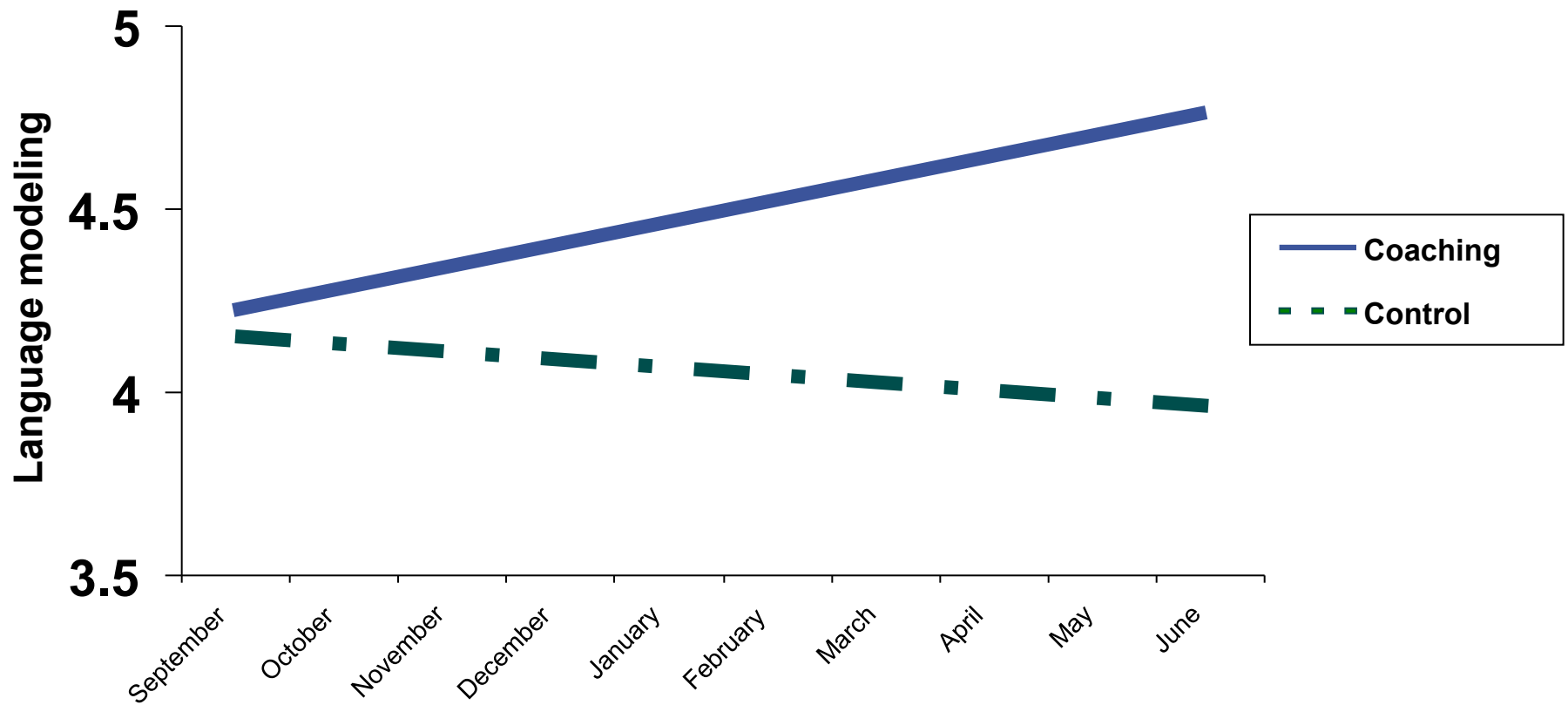
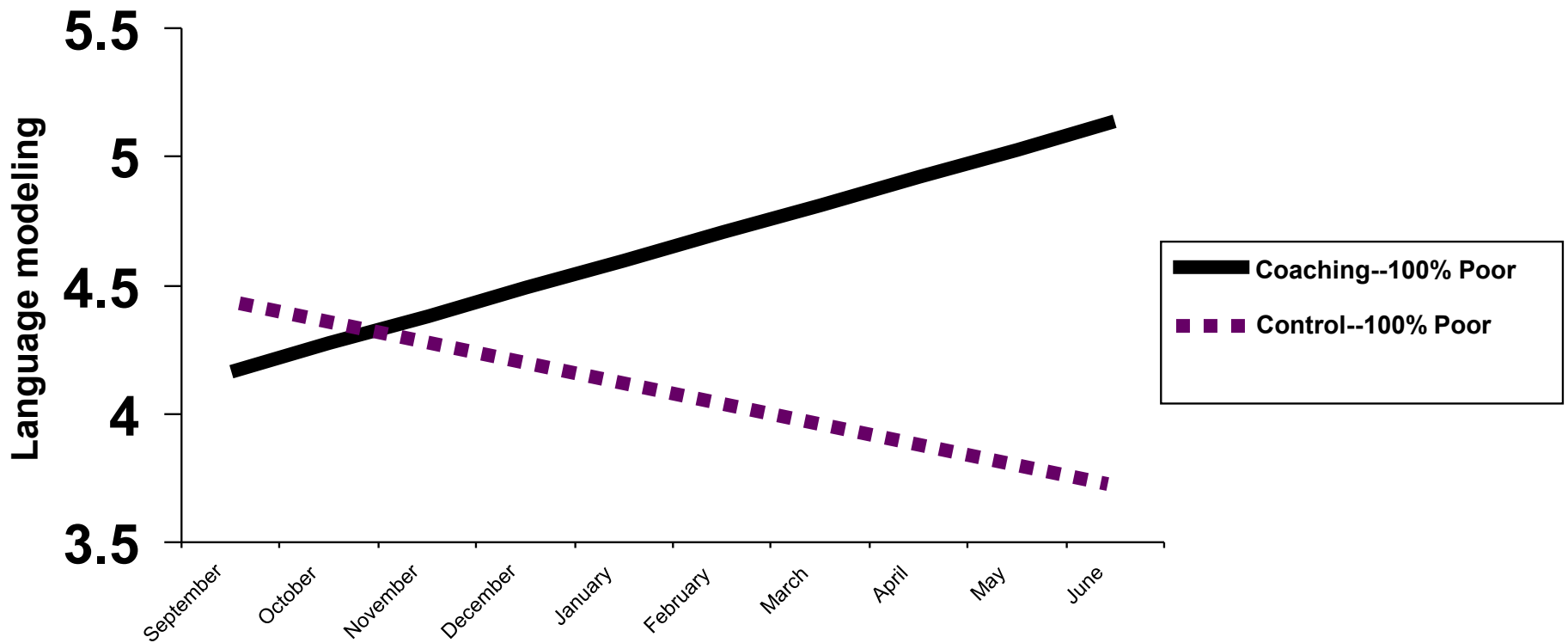Roll over the video and press the play button below to being.

YOUR RESPONSE:

Submit My Response

MTP Coaching improves interactions

Classrooms with high poverty benefit more from MTP coaching for teachers

Findings: Effects of MTP support in PK

- **Teachers with MTP coaches**
  - ❑ **Grew more sensitive in interactions with students**
  - ❑ **Increased students' engagement in instruction**
  - ❑ **Improved language stimulation techniques**
  - ❑ **High-poverty classrooms benefit a great deal**
  - ❑ **Early career teachers benefit from coaching and video**
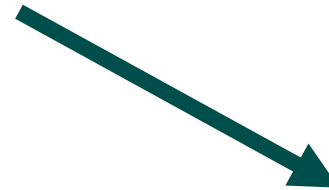- **Children with MTP teachers**
  - ❑ **Made greater gains in tests of early literacy**
  - ❑ **Experienced lower levels of problem behavior**
  - ❑ **Demonstrated higher levels of expressive language**

NCRECE professional development study

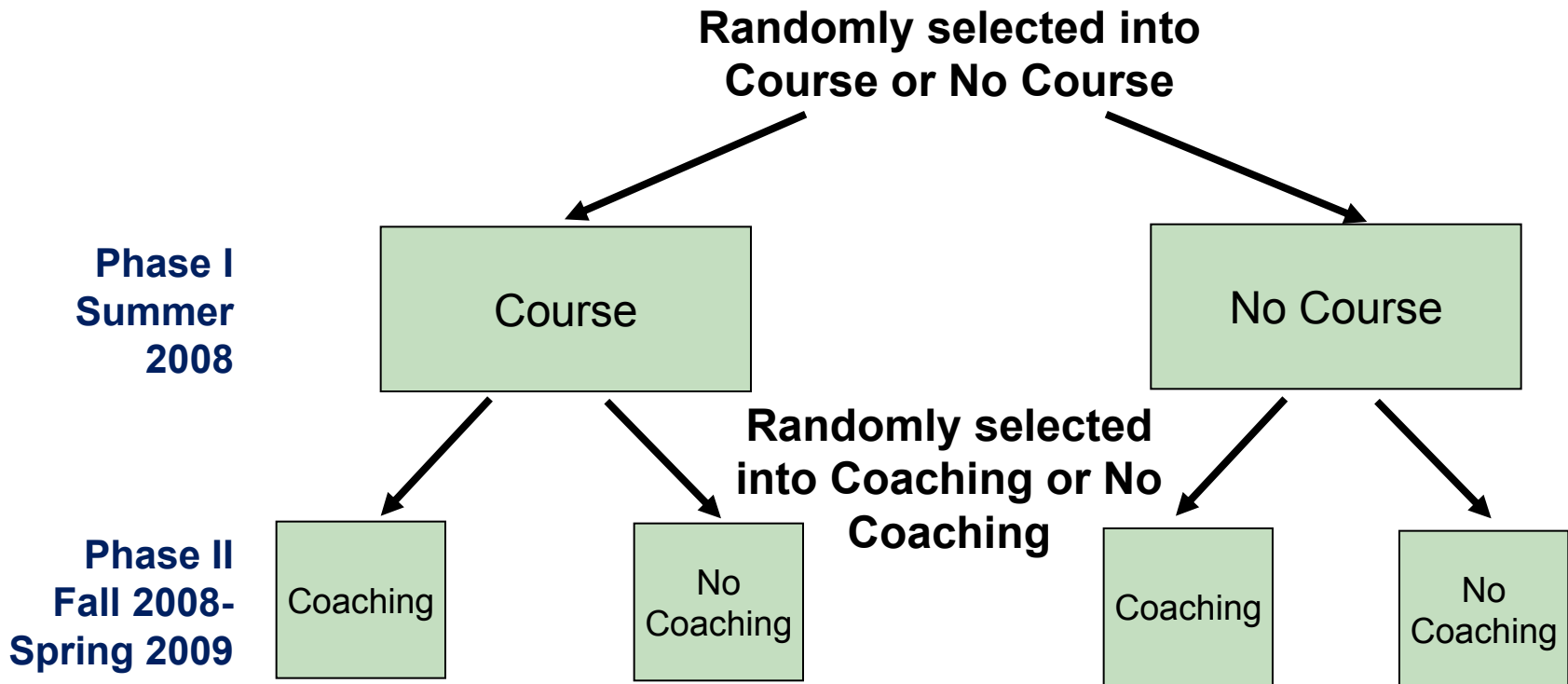**NCRECE evaluates two PD supports:**
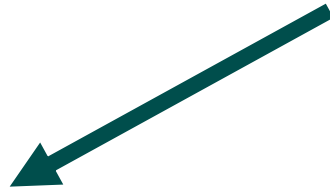
In-service course on effective interactions for language/literacy

In-service coaching using *MyTeachingPartner*

NCRECE PD study research design

Randomly selected into Course or No Course

Phase I Summer 2008	Course	No Course

Randomly selected into Coaching or No Coaching

Phase II Fall 2008- Spring 2009	Coaching	No Coaching	Coaching	No Coaching

During coaching phase, 4 children (2 boys, 2 girls) were randomly selected from each classroom for assessments.

Research participants and partners

Teachers: N = 506

- **45% with Bachelor's degree, 42% with AA or less**

- **13% with Master's degree**

- **Mean years teaching preschool: 11.3 (s.d., 7.8)**

- **Ethnicity: African American 47%; White 33%; Latina 9%; Asian 3%; Other 8%**

- **10 early ed sites, mostly urban, 60% HS**

- **Higher education partners at each site**

Course focus and aims

- **Identify connections between teacher-child interactions, child development, and learning**

- **Describe elements of effective teaching as defined by Classroom Assessment Scoring System (CLASS)**

- **Accurately observe effective and ineffective interactions with children using CLASS**

- **Describe implementing language and literacy curricula through effective teacher-child interactions**
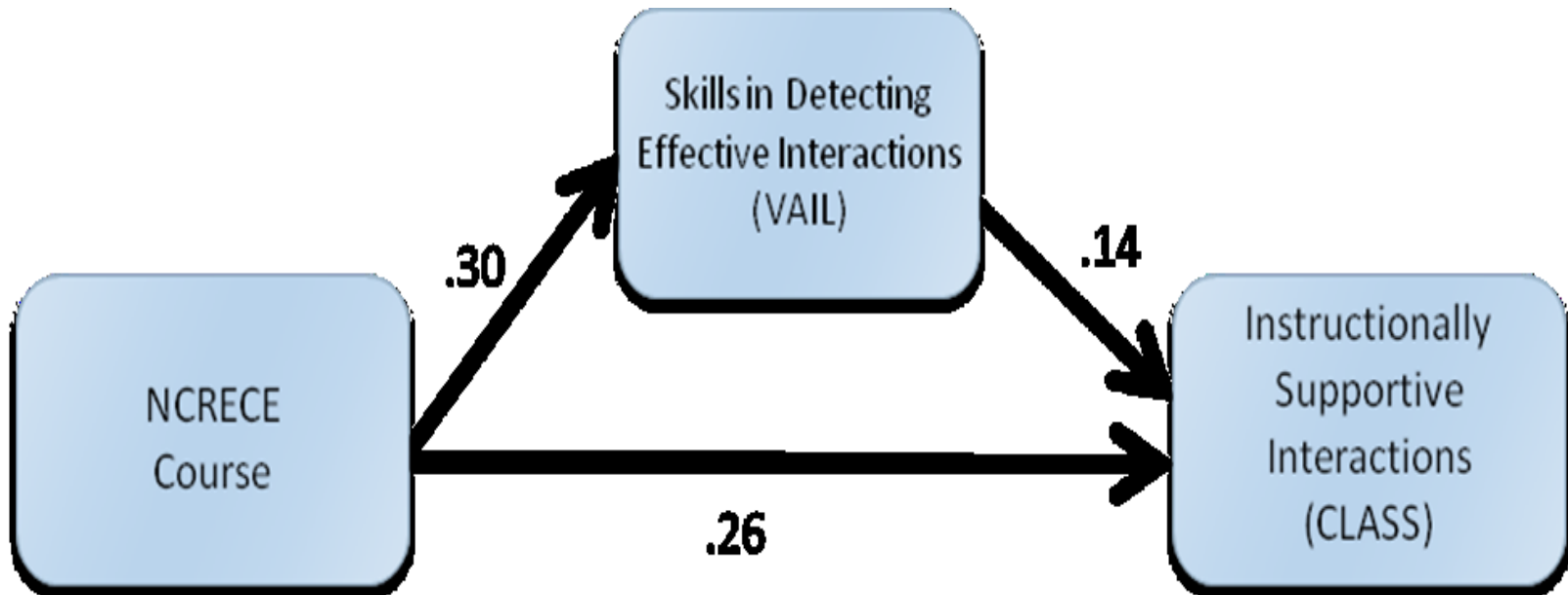
Course impacts on beliefs, knowledge, skill
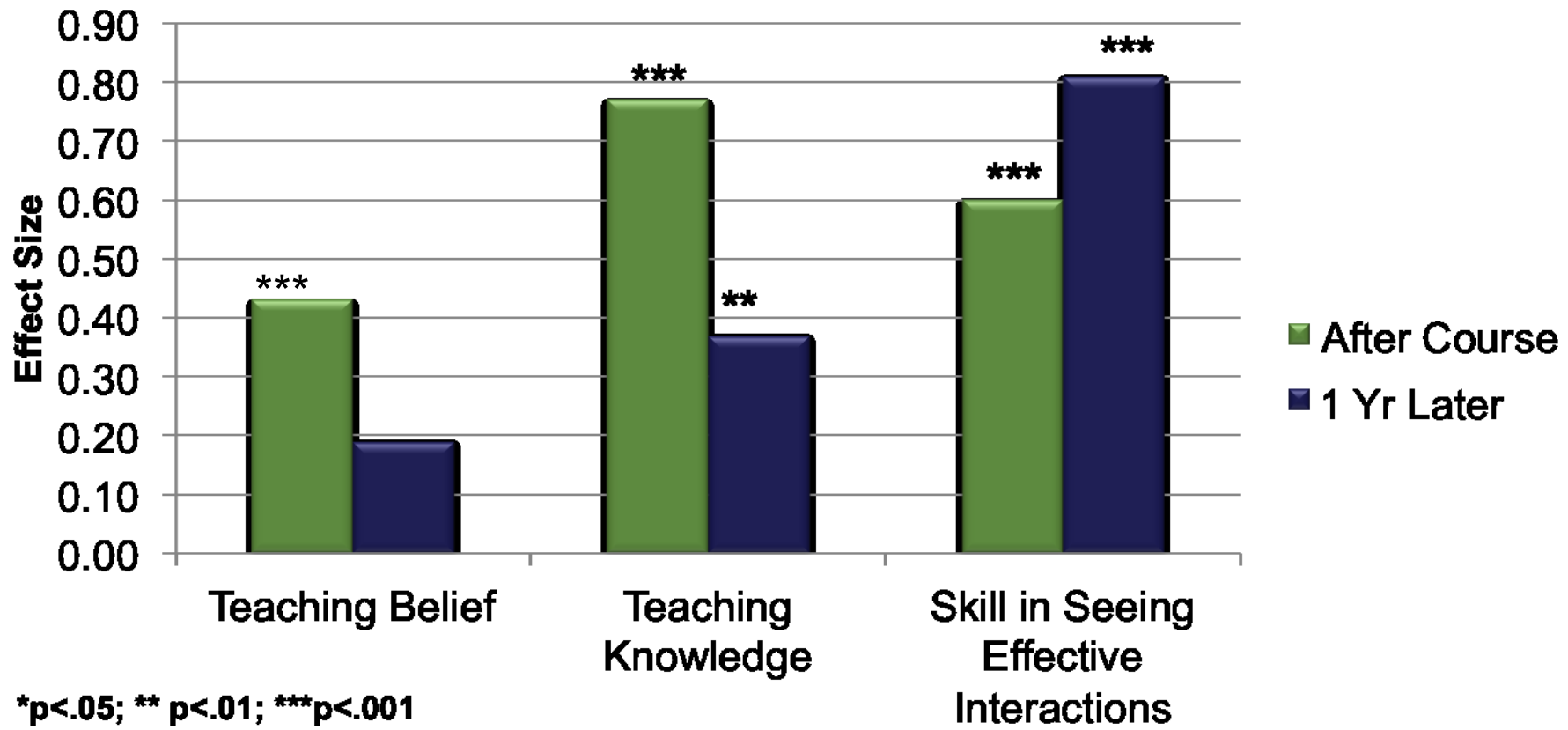
Course impacts on teaching practice
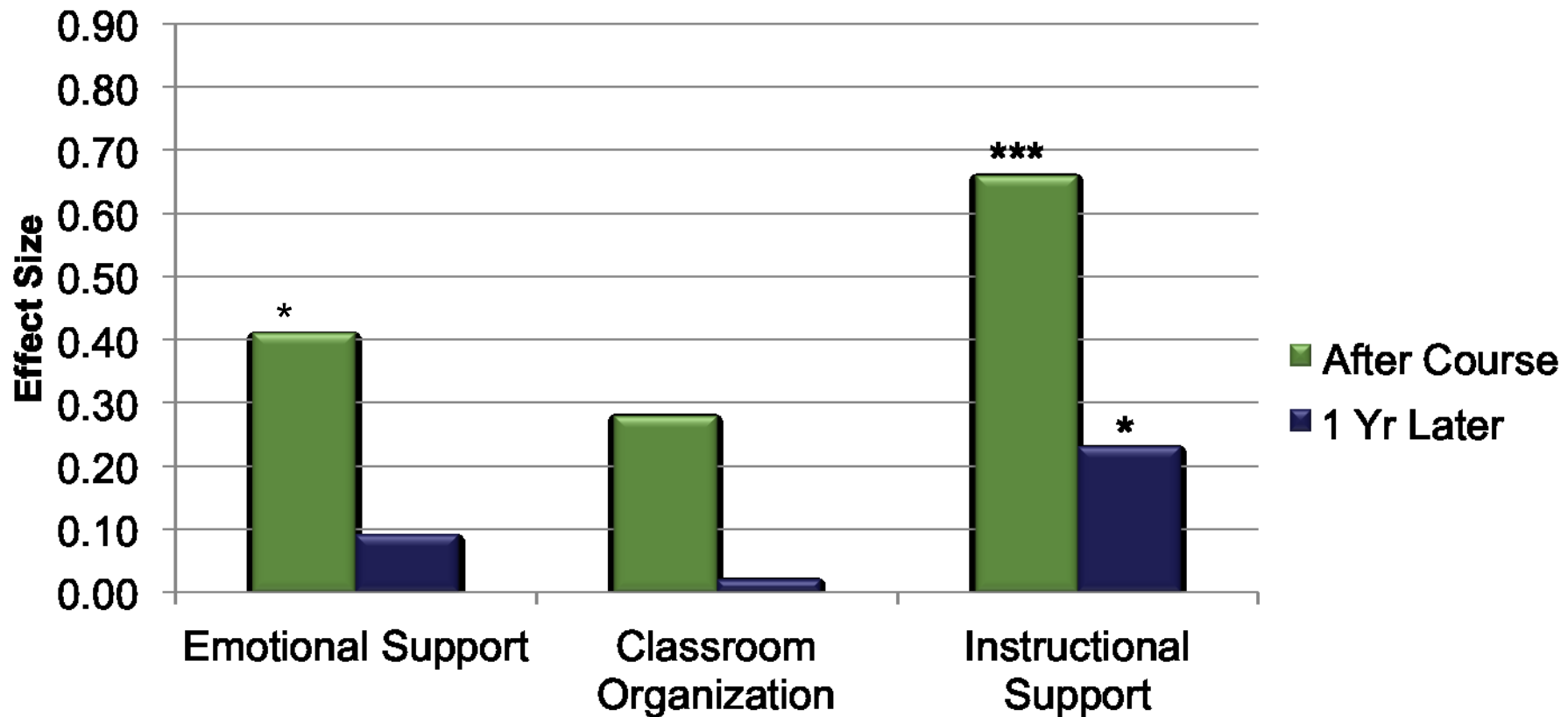
*p<.05; ** p<.01; ***p<.001

The importance of "Seeing"

What did we learn from course?

■ **Teachers demonstrated changes in beliefs, knowledge, skills and practices**

■ **Effects on practice were strongest for instructional interactions – were sustained 1 year later**

■ **Course was effective for a range of teachers**

■ **Course promoted better interactions in the classroom through increasing teachers' observation skills (VAIL) – can be trained**
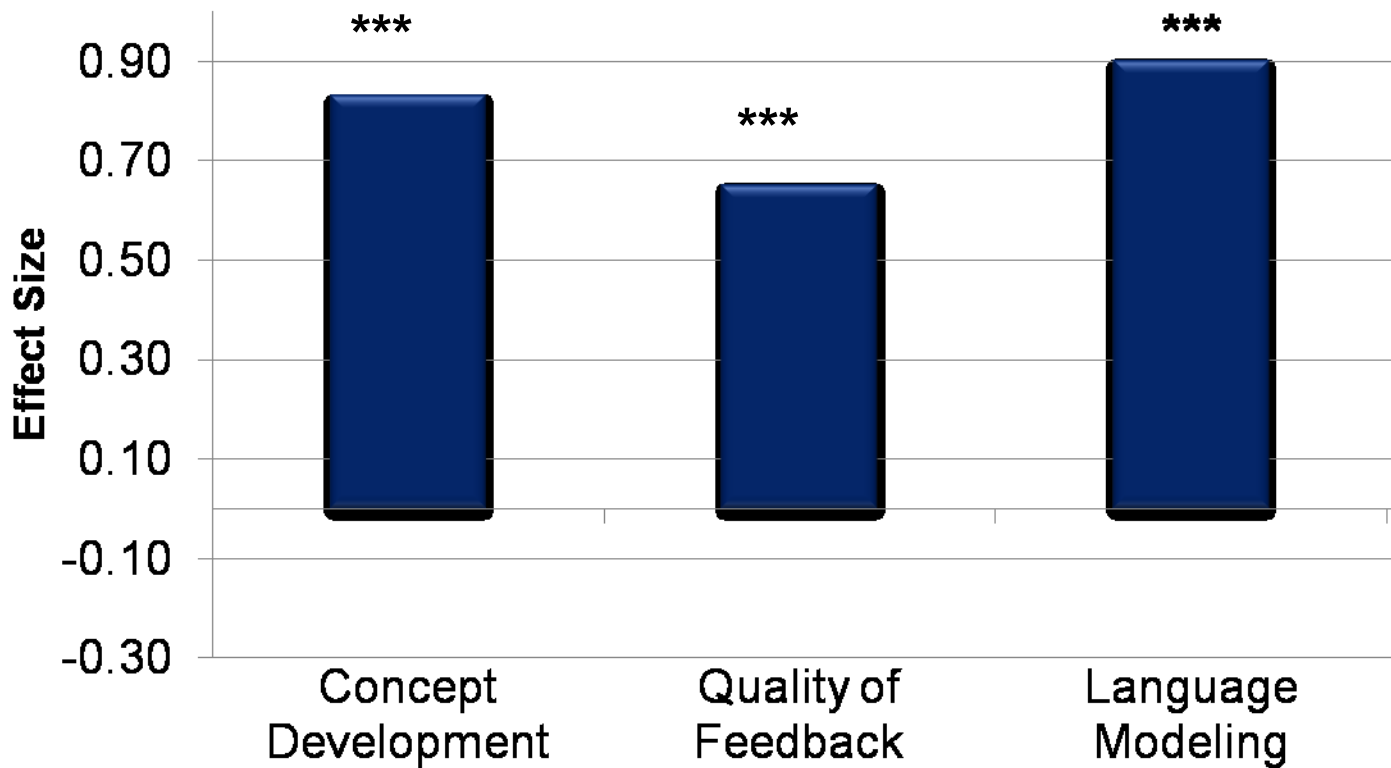
MTP coaching protocol

- **Scale-up to 10 sites, train and support local coaches**

- **Focus most of coaching cycles on Instructional Support behaviors.**

- **Standardize sequence of exposure**

Coaching impacts on emotional support
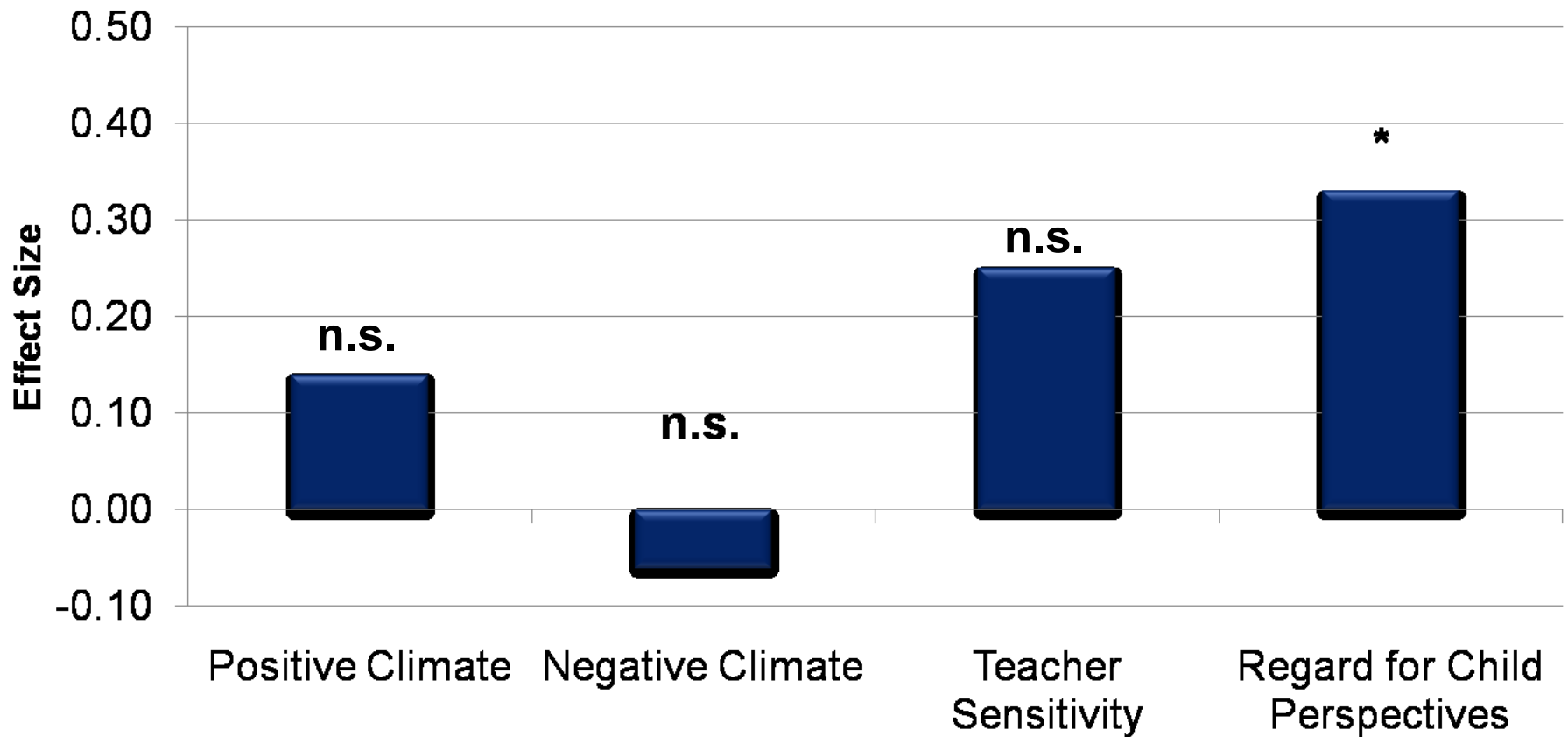
*p<.05; ** p<.01; ***p<.001

Coaching impacts on instructional support

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

Dose-response analysis of coaching effects

■ **Dose: Accumulating exposure to: a) video b) prompts in each of 3 CLASS domains.**

■ **Response: Incremental (cycle) changes in CLASS in 3 domains. Test average and non-linear effects**

■ **General pattern of increase dose = positive change**

 ❑ **Prompts → Instructional Support (15 prompts then level off)**

 ❑ **Video → Emotional Support (16 minutes before see increase)**

■ **Do benefits vary with quality of implementation?**

Implementation results and implications

- **Effective PD interventions can be delivered locally with high fidelity and quality.**

- **Quality of implementation matters for teacher engagement and for benefits of PD.**

- **"Implementors" need focused support. Biweekly conference calls, check-ins, standardized protocols all essential to keeping focused.**

Effects on child outcomes

- **Coursework-coaching tested separately and in combination in Intent-to-Treat analyses**

- **Child outcomes in coaching year and for children in teachers' classrooms the following year**

- **Literacy, language development, self-regulation**

- **No effects in concurrent (coaching) year**

- **For children year after coaching, MTP increased self regulation and working memory; and literacy in classrooms with targeted curriculum.**

MTP in secondary classrooms

- **Same approach – MTP coaching, video library**

- **Randomized evaluation study – >100 classrooms**

- **6th-11th grades, *all content areas***

- **Teachers improved instruction; kids more attentive, engaged**

- **Average student with MTP teacher improved *10* percentile ranks on state high-stakes standards tests**

- **Replicating results in another city**

Online course:
# Mechanism to foster intentional teaching

Intentional teaching requires teachers to **know** what to do in each moment, **see** effective teaching in themselves and others, **enact** these strategies in the classroom, and **reflect** on, or analyze what works and what does not.

Active ingredients for changing practice

- **Enhanced ability to "see" effective practice in self and others**
  - ❑ Video library
  - ❑ Review of own video
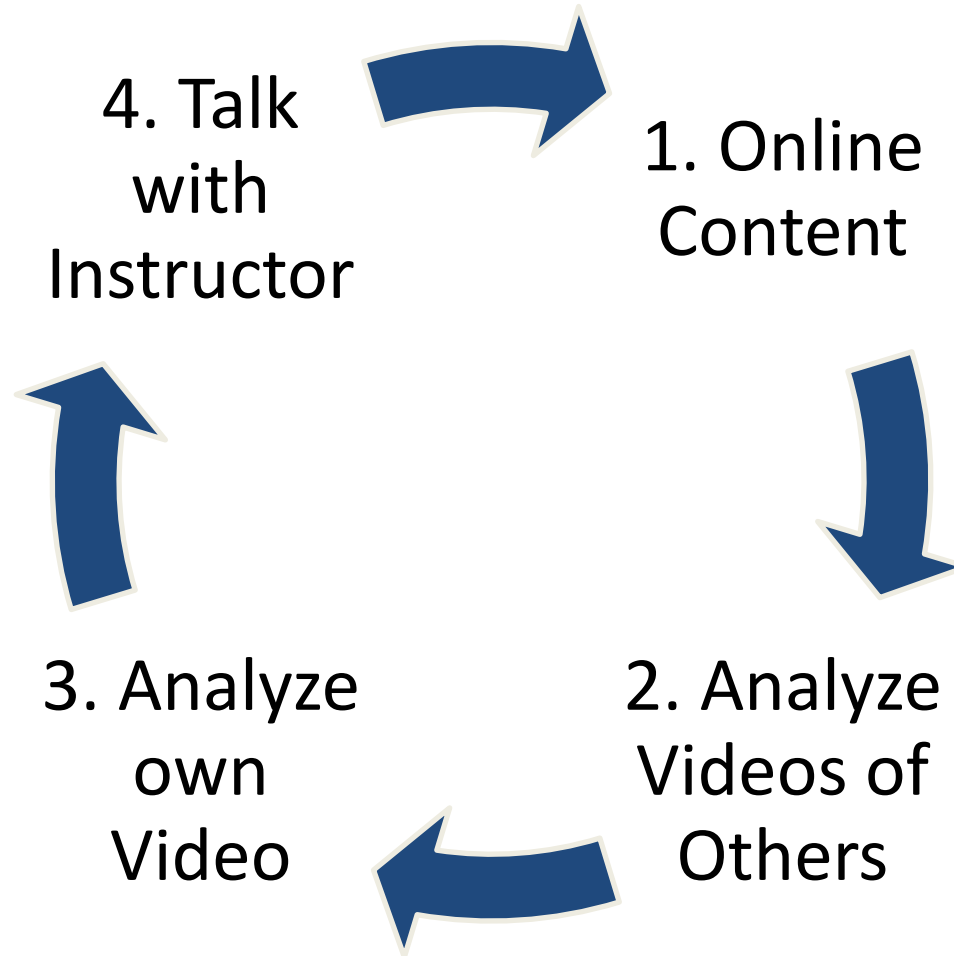 - ❑ Course – focus on ineffective practice as well

- **Emotionally supportive context for change**
  - ❑ **Coach & Instructor**
  - ❑ **"Nice Work" prompt in MTP**
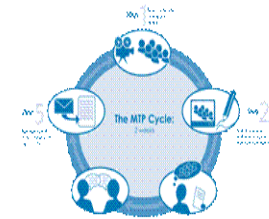
Professional Development
- Knowledge
- Schemas
- Relationships

Online course components

4. Talk with Instructor

1. Online Content

2. Analyze Videos of Others

3. Analyze own Video

Online content

All About Positive Climate
Relationships

- **Help teachers "chunk" complexities into 10 key elements of practice**
  - ❑ **Dimensions**
    - ■ **Indicators**
      - ❑ **behaviors**

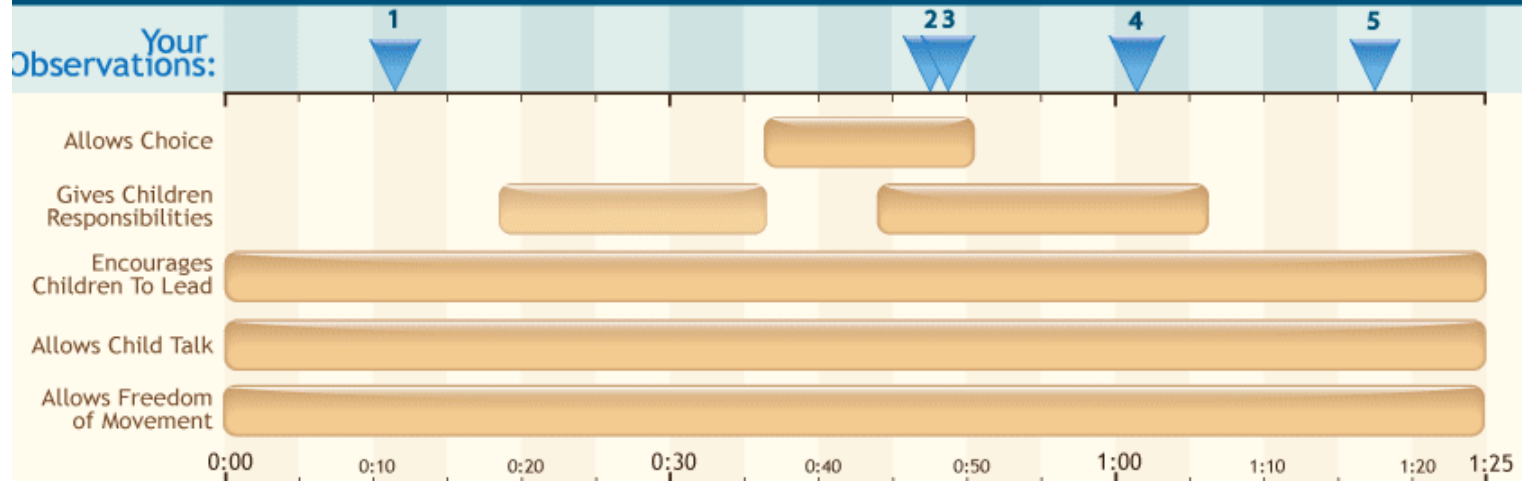- **Tightly couple knowledge of interactions with visuals of what it looks like in real classrooms**

Analysis of others' teaching

What about making observations?

Click each behavior you observe as it happens:

28 Physical Closeness (throughout video)

19] Joining in Child Activities (throughout video)

5] Children Helping Each Other

29 Shared Emotion (46 - 1:02)

15] Social Conversation

0:00 / 0:00

27 learners
96 tags made: 76 correct, 20 incorrect

Of the 76 correct tags:

74 were tagged in the right time frame

Haven't analyzed descriptions yet to see what they wrote.

The 15 Social conversation taggers mentioned the teacher talking about the smell of her hand, the remark about the girl's long hair, or described a conversation related to the hamster

Standardized observation of interactions

- **Feasible, reliable and valid at scale – A scalable language and lens for classroom settings**

- **Work in K-12 years confirming pk-3 work**

- **Skill of seeing and labeling interactions and cues appears a key mechanism for transfer to practice; can be measured (VAIL) and trained (MTP)**

- **Dose-response - inputs to teachers align with domain of outputs. Possible different mechanisms of change for different domains of practice?**

- **Dose nonlinearity has implications for design of observation-PD triage systems and costs**

Moving the needle – Access *and* Quality

- **Align observation with PD resources and feedback to – "move" quality into "active range."**

- **Not all coaching and observation is effective; must be focused, ongoing, aligned to target behaviors**

- **A focus for teacher professional development and preparation to increase quality and child outcomes**

- **Incentives and policies to use effective PD? Certification for competent performance? Systems of "badging" to accrue credits and career path?**

- **Re-design of preparation and support systems**

Appreciation and collaborators

- **Institute of Education Sciences support for the National Center for Research on Early Childhood Education**

- **Eunice Kennedy Shriver National Institute for Child Health and Human Development**

- **University of Virginia Center for Advanced Study of Teaching and Learning**

- **Colleagues and collaborators at Frank Porter Graham Child Development Center at University of North Carolina Chapel Hill; UCLA, UNC-Greensboro.**

- **Dozens of partner programs and districts and the hundreds of teachers who have worked with us**