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

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Aims of today’s talk
- What experiences for social and cognitive development are offered to young children in preschool classrooms?
- 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?

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. Move cautiously with QRIS

Child–teacher interactions matter
- 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
- School readiness is a social process:
  - Relationships with teachers are a “medium” for learning
- Relationships and interactions with teachers and caregivers define quality and value of early education and are the path to improving school readiness.
- Standardized, observational assessments

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-3

- Positive climate
- Negative climate
- Teacher sensitivity
- Regard for student perspectives
- Effective behavior management
- Instructional learning formats
- Productivity
- Concept development
- Quality of feedback
- Language modeling

### Emotional Support

### Organization/Management

### Instructional Support

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### Observations at the population level in US early education

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### Interactions and children’s PK development

<table>
<thead>
<tr>
<th>Receptive Language</th>
<th>Expressive Language</th>
<th>Rhyming</th>
<th>Letter Naming</th>
<th>Math Skills</th>
<th>Social Competence</th>
<th>Behavior Problems</th>
</tr>
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<tbody>
<tr>
<td>✓</td>
<td>✓/✓</td>
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Changes in children’s development from beginning to end of preschool.

### 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 kindergarten.

- Kindergarten Instructional Support scores made an independent contribution to gains in children’s language and math abilities.

### Connections between QRIS and readiness?

- Many elements of quality – Teacher credentials, ratio, physical environment, parent engagement, interactions(?), etc.

- Various methods to define “points” for these quality indicators (e.g. cutoffs) and then aggregate them to “stars.”

- Does # of stars predict readiness? Do elements predict readiness? Study of 14 states’ QRIS

- No association of # stars to readiness; only element that predicts is observed interactions

### 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

<table>
<thead>
<tr>
<th>1st Grade Instructional Support</th>
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<tr>
<td>Low</td>
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<tr>
<td>98</td>
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<td>101</td>
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<tr>
<td>103</td>
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</table>

- High educ.
- Low educ.

Gains in grade 1 achievement in emotionally supportive classrooms

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Kindergarten adjustment problems
- No problems
- Multiple problems

Teacher and child stress and interactions

- Emotional sensitivity of teachers leads to decreases in child stress hormones (cortisol) over the day and year.
- Higher teacher stress reactivity predicts poor interactions and reduces value of interactions for children’s learning
- “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

Improving interactions and their value

- Link supports to teachers with how they affect interactions with children – Building quality
- CLASS – specific definitions of interactions – a target
- Video Library – analysis of others’ interactions
- Coaching – ongoing analysis/feedback on own interactions
- Course – knowledge and analytic skills
- All tested in experiments

CLASS Video Library

CLASS examples: PK-3

Video Library – analysis of others’ interactions

Coaching – ongoing analysis/feedback on own interactions

Course – knowledge and analytic skills

All tested in experiments
MTP coaching cycle

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

MTP Coaching improves interactions

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

Classrooms with high poverty benefit more from MTP coaching for teachers

NCRECE professional development study

NCRECE evaluates two PD supports:

Phase I
In-service course on effective interactions

Phase II
In-service coaching using MyTeachingPartner
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 improves beliefs, knowledge, skill

![Graph showing improvements in teaching beliefs, knowledge, and skills over time.]

- After Course
- 1 Yr Later

Course improves teaching practice

![Graph showing improvements in emotional support, classroom organization, and instructional support over time.]

- After Course
- 1 Yr Later

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 all teachers
- Course promoted better interactions in the classroom through increasing teachers’ observation skills – 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
MTP coaching improves instructional support

![Graph showing improvements in instructional support with asterisks (*) indicating significance levels.]

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

Analysis of coaching effects

- Accumulating exposure to: a) video b) prompts in each of 3 CLASS domains.
- Predicting incremental changes in CLASS
- General pattern of increase dose = positive change
  - Prompts → Instructional Support
  - Video → Emotional Support
- Focused attention in a domain leads to changes in that domain of teacher-student interaction

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.
- Coaches and course instructors need focused support. Conference calls, check-ins, standard protocols all essential to keeping focused.

Coaching/course effects on child readiness

- Child outcomes in coaching year and for children in teachers’ classrooms the following year
- Literacy, language development, self-regulation
- Effects on language behaviors in concurrent (coaching) year – greater multi-word conversational turns
- For children year after coaching, MTP increased self regulation and working memory; language behavior; and literacy in classrooms with targeted curriculum.

Online course: Foster intentional teaching

![Diagram illustrating the process of intentional teaching with icons for KNOW, DO, SEE.

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
Online course components

1. Online Content
2. Analyze Videos of Others
3. Analyze own Video
4. Talk with Instructor

Online content

- 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

Early results from online course

- Feasible, with high levels of teacher engagement. Teachers report relevance.
- Teachers learning the skills of “seeing” interactions and child cues, become better observers
- Teachers “stick with” the online activities
- Teachers highly involved in online communities and group discussions of practice.

Standardized observation of interactions

- Feasible, reliable and valid – A common language and lens for classroom interactions and practice. Implications for QRIS
- Regular use of observation - a focus for quality
- Seeing and labeling interactions and child cues appears a key for transfer to teachers’ practice; can be measured and trained (MTP)
- Focused support to teachers in a certain domain produces improvements in their interactions in that domain

Improving impacts: Program design and PD

- Direct training in knowledge of child development – math, literacy, social, language
- Skills training in interactions has benefits
- Use of evidence-based educationally-focused, proven-effective curricula. Least prevalent among preschool programs
- Skills training in curriculum and implementation
- Design really matters – design for impact and implementation
Moving the needle – Access and Quality

- Connect observation with PD and feedback to move quality into “active range.” QRIS
- Not all coaching, coursework, or observation is effective; must be focused, ongoing
- Focused teacher professional development and preparation can increase quality and children’s school readiness – Gap-closing experiences
- Teacher preparation and PD – support teachers in their classrooms; focus preparation on actual skills
- We can close gaps for kids and support teachers to feel effective and connected

Appreciation and collaborators

- Institute of Education Sciences support for the National Center for Research on Early Childhood Education
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- Colleagues at www.teachstone.com
- Dozens of partner programs and districts and the hundreds of teachers who have worked with us