Measuring and Improving Classroom Quality in Early Childhood

Robert C. Pianta, Ph.D.
Dean, Curry School of Education
Founding Director, Center for Advanced Study of Teaching and Learning

Quality matters...

- What is quality?
- How can we assess it in a way that will have the biggest impact on children’s development?
- Linking quality assessment/monitoring to quality improvement
- Systems to: Assess/monitor; Improve impacts; and Implement well at scale
Quality - A focus on student-teacher interactions

- Interactions with adults form “infrastructure” for school success:
  - Self-regulation, emotional self-control
  - Task orientation, persistence, motivation
  - Cognitive processes, language

- Instruction is, in part, a social process:
  - Interactions with teachers are a “medium” for engagement
  - Good instruction is embedded in interactions

- Interactions operate across content/curriculum
Teacher-Child Interactions (these matter)

- Emotional Support
- Classroom Organization
- Instructional Support
Teacher-student interaction: CLASS PK

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

- Effective behavior management
- Learning formats/engagement
- Productivity

- Concept development
- Evaluative feedback
- Language modeling

Emotional Support

Organization/Management

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
How is the CLASS organized?

Teacher Sensitivity reflects the teacher’s responsiveness to the academic and social/emotional needs and developmental levels of individual students and the entire class, and the way these factors impact students’ classroom experiences.

<table>
<thead>
<tr>
<th>Awareness</th>
<th>Low (1,2)</th>
<th>Mid (3-5)</th>
<th>High (6-7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Checks in with students</td>
<td>The teacher does not monitor students for cues and/or consistently fails to notice when students need extra support or assistance.</td>
<td>The teacher sometimes monitors students for cues and notices when students need extra support or assistance, but there are times when this does not happen.</td>
<td>The teacher consistently monitors students for cues and notices when students need extra support or assistance.</td>
</tr>
<tr>
<td>Anticipates problems</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Notices difficulties</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Responsiveness to academic and social/emotional needs and cues</th>
<th>Low (1,2)</th>
<th>Mid (3,4,5)</th>
<th>High (6,7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individualized support</td>
<td>The teacher is unresponsive to, and/or dismissive of, students’ academic and social/emotional needs and cues for support.</td>
<td>The teacher is sometimes responsive to students’ academic and social/emotional needs and cues for support, but at other times is more unresponsive.</td>
<td>The teacher is consistently responsive to students’ academic and social/emotional needs and cues for support.</td>
</tr>
<tr>
<td>Reassurance and assistance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusts pacing/wait time as needed</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Average Ratings of Interactions in Pre-K - 3rd Classrooms

- Emotional Support
- Classroom Organization
- Instructional Support

Class Scores
# Interactions and children’s PK development

<table>
<thead>
<tr>
<th></th>
<th>Emotional Support</th>
<th>Instructional Support</th>
<th>ECERS-R Total</th>
<th>Structural</th>
</tr>
</thead>
<tbody>
<tr>
<td>Receptive Language</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expressive Language</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>Rhyming</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Letter Naming</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Math Skills</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Competence</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavior Problems</td>
<td>✓</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Changes** in children’s development from beginning to end of preschool  
Mashburn, et al. (in press)
Do PK effects persist into kindergarten?

- Yes, children in pre-k classrooms offering higher levels of Instructional Support displayed better language skills at the end of the kindergarten 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 – “4.5” and above
- Instructional Support – “2” and above
- For IS, the active range appears linked to teachers’ increased support for cognitive skills
- One-point shift appears meaningful
Gains in grade 1 achievement in instructionally supportive classrooms

Standardized tests of achievement adjusted

1st Grade Instructional Support

- Low
- Moderate
- High

High educ.
Low educ.
Gains in grade 1 achievement in emotionally supportive classrooms

Standardized tests of achievement adjusted

Kindergarten adjustment problems
- No problems
- Multiple problems

1st Grade Emotional Support

- Low
- Moderate
- High
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.

- 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
CLASS Video Details: Teacher Sensitivity

**Teacher Sensitivity to Child’s Shyness**

A child who is asked to talk to the group is reluctant to respond in front of the group. To maximize the child’s feeling of success and encouragement, the teacher uses verbal and non-verbal strategies, such as touch and a gentle tone of voice. The teacher’s close physical proximity appears reassuring to the child. The teacher begins with an open-ended question and moves to a yes/no question when the child is hesitant to respond. The teacher goes further to provide the information to the class on behalf of the child. She ends the child’s turn with an extra touch of reassurance, and a thank you. This child is probably more likely to respond to these types of requests than if she was not offered this support, and maybe the next time she will speak more.
Course improves interactions

- Effect Size
  - Emotional Support
  - Classroom Organization
  - Instructional Support

- After Course
- 1 Yr Later

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

Teacher Sensitivity

- MTP
- Control

Month: September, October, November, December, January, February, March, April, May, June
Classrooms with high poverty benefit most from MTP coaching for teachers

Teacher Sensitivity

- Coaching--100% Poor
- Control--100% Poor
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
MTP coaching protocol – Study II

- Scale-up to broader # of sites, etc.
  - Manualized local coaching – increased rigor including prompt-bank and regular feedback to local coaches

- Standardize sequence of exposure
  - One year of exposure (12-16 cycles)
  - Cycle One
    - Live visit; test process and technology
  - Cycles Two through Five
    - Cycle Two – Emotional Support: Positive Climate
    - Cycle Three – Classroom Organization
    - Cycles Four and Five – Emotional Support; Sensitivity
  - Cycle Six through remainder of year: Instructional Support
Coaching improves emotional support

*\text{p}<.05; ** \text{p}<.01; ***\text{p}<.001
Coaching improves instructional support

*\(p < .05\); ** \(p < .01\); *** \(p < .001\)
Effects on child outcomes

- Coursework-coaching tested separately and in combination
- 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; expressive language; and literacy in classrooms with targeted curriculum.
Implementation 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.
QRIS: Indicators and impacts

- QRIS Goal: Measure “quality” with multiple indicators, composite (“star”), drive change in school readiness

- Do QRIS indicators or composites predict children’s school readiness?

- Simulation of 9 states’ existing QRIS using 5 indicators and association with growth in child outcomes

- Indicators: Staff quality; ratio/size; family engagement; observed environment; observed teacher-child interactions
Results of QRIS simulation

- No single indicator has any association with growth in math, reading, language or social skills, except . . .

- Observed teacher-child interactions with all child outcome assessments (effect sizes .3 - .5)

- None of the 9 states’ QRIS “star ratings” were related to children's learning; more stars ≠ greater child learning

- If observed interactions were included in composites, those effects “wash out” in composites

- Systems should be simpler and more focused on quality indicator(s) that drive student learning
Accountability and program development

- New policy frameworks (QRIS) offer potential, but also require careful evaluation

- Accountability systems – wide-scale monitoring and feedback at correct level of aggregation. Link to aligned, proven-effective PD to target improvements in metrics.

- Require capacity – # of observers/quality control

- Live or video coding and stakes of the data

- Issues to be resolved: cutpoints, combining with other metrics, implementation
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