

The short-term effects of instructional coaching on teacher quality in early childhood education

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Background

The opportunities for children to participate in formal early childhood education before entering the K-12 system have rapidly expanded over the last several decades. Within these settings, early educators are an important and potentially malleable influence on children's development, primarily through the interactions they have with children (Bronfenbrenner & Morris, 2006). Yet, despite increases in overall access to early education, few children access settings marked by high quality teacher-child interactions (Nores & Barnett, 2014). As such, many early education programs have invested in recruiting, developing, and retaining skilled educators.

Instructional coaching – the practice of an expert engaging in ongoing consultation with a teacher – is touted as a “strongest hope” ingredient for teacher development (Weiland, McCormick, Mattera, Maier, & Morris, 2018). Indeed, a handful of randomized interventions suggest that coaching has positive impacts on teacher practices and child outcomes (e.g., Mashburn, Downer, Hamre, Justice, & Pianta, 2010). Most of these studies explore teacher quality and child outcomes at the end of multiple coaching sessions, shedding little light on how teacher practices are shaped in the short-term by individual coaching sessions. Moreover, few studies explore how the focus of individual coaching sessions influence targeted versus non-targeted practices. Unpacking the intermediate mechanisms of coaching can inform the implementation of such reforms.

Research Questions

We examine the extent to which individual coaching sessions targeting specific teacher practices impact teacher quality in the short-term and evaluate whether immediate impacts vary based on the focus of each coaching session.

Data and Participants

We leverage data from the National Center for Early Childhood Education's Professional Development Study (NCRECE-PDS; Pianta & Burchinal, 2007-2011), a multi-site multi-phase randomized control trial of professional development for early educators. In the second phase of the study, early educators from nine cities were randomized to on-going coaching focused on specific aspects of teacher-child interactions. During this phase, data were collected on teachers' engagement in the coaching intervention, including the timing and focus of each coaching session. After each coaching session, educators were asked to submit a classroom video to the research team. This study relies on panel data on the 169 teachers that participated in at least one coaching session and submitted at least one video. These teachers engaged in an average of 10.11 ($SD = 4.15$) coaching session with 15 trained coaches and submitted an average of 12.01 videos ($SD = 5.48$) across the entire study. The dataset includes a total of 2,029 teacher videos.

Participating teachers were employed in a variety of early education settings (e.g., Head Start, public prekindergarten, and private centers) and had diverse socio-demographic characteristics.

Measures

Teacher Quality. Our outcomes of interest are teachers' domain scores on the Classroom Assessment and Scoring System™ (CLASS; Pianta, LaParo, & Hamre, 2008), a widely-used measure of teacher-child interactions. Teachers were asked to submit brief videos throughout the study, which were then double coded along the CLASS's 11 dimensions. Dimension scores are often averaged and reported in broader domains: Emotional Support (ES), Classroom Organization (CO), and Instructional Support (IS). This study assessed videos on a fourth domain, Literacy Focus (LF), which evaluates teachers' integration of literacy themes in instruction (Justice, Mashburn, Hamre, & Pianta, 2008). Videos received scores of one to seven on each domain, with higher scores indicating higher quality.

Coaching Session Focus. Each coaching session focused on one dimension of the CLASS, which was recorded by coaches. The first cycle for all teachers focused on Positive Climate, an ES dimension. Teachers primarily focused on ES at the start, CO in the middle, and IS at the end of the coaching intervention.

Analysis

To estimate the short-term impacts of coaching on teacher quality, we use a teacher fixed effects approach that allows us to compare teacher practices immediately after a coaching session to those that did not immediately follow a session. Specifically, our primary specification estimates a teacher's CLASS domain score as a function of whether the video was submitted within 30 days after a coaching session, time-varying characteristics (e.g., the number of prior coaching sessions a teacher had), a teacher fixed effect, and a month effect. To estimate the effect of a coaching session on a particular focus, we employ a similar model with an indicator for whether the video was submitted within 30 days of a session focused on a specific domain.

Results

Preliminary results on the average short-term effects of individual coaching sessions are summarized in Table 1 and the effects of domain-specific coaching sessions are summarized in Table 2. In terms of average effects, we observe marginally significant and small positive impacts of coaching sessions on ES and CO ($b = 0.087$ [$SE = 0.045$] and $b = 0.086$ [$SE = 0.052$], respectively). When we unpack these effects by coaching session focus, we find that both LF- and IS-focused sessions had large and positive impacts on teacher quality in those domains ($b = 0.299$ [$SE = 0.094$] and $b = 0.226$ [$SE = 0.052$], respectively). We additionally find evidence that some domain-specific sessions had negative impacts on teacher practices in non-targeted domains. For example, teachers had significantly lower IS scores immediately following CO-focused session ($b = -0.160$ [$SE = 0.051$]).

Conclusion

These results suggest that the effectiveness of coaching sessions varies based on their focus. Whereas IS and LF-focused sessions had positive immediate impacts on scores in those domains, sessions focused on ES or CO did not have short-term impacts on teachers' skills in those domains. Moreover, these results indicate that teachers may forego quality practices in one area when asked to focus on practices in another domain. Educators receive inputs from multiple sources encouraging them to implement numerous practices and in the face of overwhelming priorities, may be forced to make strategic decisions about which practices to implement. The final presentation will include additional analyses exploring the potential fade out of short-term effects and will discuss limitations. Implications for the development of teacher professional development systems in early childhood education settings will also be considered.

Tables and Figures

Table 1. Average short-term effects of coaching sessions on CLASS domain scores

| | (1) CLASS: ES | (2) CLASS: CO | (3) CLASS: IS | (4) CLASS: LF |
|--------------|-------------------|-------------------|-------------------|-------------------|
| Post Session | 0.087~ (0.045) | 0.086~ (0.052) | -0.050 (0.059) | -0.034 (0.057) |
| Observations | 2029 | 2029 | 2029 | 2029 |

Note: Standard errors in parentheses; Stars indicate statistical significance: ~ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; Teacher fixed effects models account for prior number of coaching sessions, the study phase during which the video was submitted, and the month during which the video was submitted; ES = Emotional Support, CO = Classroom Organization, IS = Instructional Support, and LF = Literacy Focus

Table 2. Short-term effects of domain-specific coaching sessions on CLASS domain scores

| | (1) CLASS: ES | (2) CLASS: CO | (3) CLASS: IS | (4) CLASS: LF | (5) CLASS: ES | (6) CLASS: CO | (7) CLASS: IS | (8) CLASS: LF | (9) CLASS: ES | (10) CLASS: CO | (11) CLASS: IS | (12) CLASS: LF | (13) CLASS: ES | (14) CLASS: CO | (15) CLASS: IS | (16) CLASS: LF |
|-----------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| Post ES Session | -0.029 (0.037) | -0.026 (0.042) | -0.043 (0.048) | 0.032 (0.047) | | | | | | | | | | | | |
| Post CO Session | | | | | 0.044 (0.039) | -0.002 (0.045) | -0.160** (0.051) | 0.022 (0.049) | | | | | | | | |
| Post IS Session | | | | | | | | | 0.069~ (0.041) | 0.057 (0.046) | 0.226*** (0.052) | -0.148** (0.051) | | | | |
| Post LF Session | | | | | | | | | | | | | -0.154* (0.074) | 0.021 (0.085) | -0.150 (0.097) | 0.299** (0.094) |
| Observations | 2029 | 2029 | 2029 | 2029 | 2029 | 2029 | 2029 | 2029 | 2029 | 2029 | 2029 | 2029 | 2029 | 2029 | 2029 | 2029 |

Note: Standard errors in parentheses; Stars indicate statistical significance: ~ $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$; Teacher fixed effects models account for prior number of coaching sessions in each domain, the study phase during which the video was submitted, and the month during which the video was submitted; ES = Emotional Support, CO = Classroom Organization, IS = Instructional Support, and LF = Literacy Focus

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