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# Exploring Coach–Teacher Interactions Within a Practice-Based Coaching Partnership

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## Abstract

Professional development (PD), which includes coaching, has demonstrated the capacity to affect preschool teachers' use of evidence-based practices. The present study explored how coaches facilitated conversations within practice-based coaching (PBC) partnerships. A direct behavioral observation coding system was developed to investigate (a) the proportion of time spent in different conversational foci, including who initiated the conversation; (b) coach verbal behaviors; and (c) whether the conversation foci, initiations, and coach verbal behavior changed across three occasions for seven coach–teacher dyads. Results from the present study indicate coaches spent the largest proportion of time engaging in conversations with teachers focused on reflection and feedback, followed by goal setting and action planning. The coaches used verbal behaviors (supportive and constructive feedback, clarifying questions) as required by the coaching protocol across all sampled occasions. Variation in conversation foci, initiations, and coach verbal behavior across three sampled occasions was evident.

## Keywords

professional development, coaching, preschool, behavioral observation

The provision of quality early learning experiences is contingent on teachers who are well prepared at entry and supported by ongoing professional development (PD) to implement evidence-based practices as intended (Winton et al., 2015). Intentional alignment between the desired outcomes of PD and the type and intensity of PD provided is necessary, so resources are used efficiently and effectively to enhance teachers' practice implementation (Winton et al., 2015). Workshops, in combination with follow-up implementation support using strategies such as coaching, are increasingly prevalent in early childhood and early childhood special education research, where enhanced knowledge and application of practices in the classroom are the desired outcomes (Artman-Meeker et al., 2015; Snyder et al., 2012). Snyder and colleagues (2012) conducted a review of early childhood PD studies and found that 74% of the 256 studies reviewed included some type of initial training (e.g., workshop) plus follow-up support, with the largest proportion of studies (51.6%) reporting the use of coaching as a form of follow-up support. Similarly, Artman-Meeker and colleagues (2015) conducted a review of the early childhood coaching literature and found that of the 49 studies reviewed, 89.9% reported coaching as follow-up to an initial training. The authors of these literature reviews and other researchers in the field (e.g., Zaslow et al., 2010) contend that enhanced reporting of PD's active ingredients, including coaching, and the extent to which the specified PD components are implemented with fidelity are needed to advance PD science.

The absence of detailed reporting about the active ingredients of PD and coaching, in particular, presents two significant challenges: (a) replication and meta-analytic studies cannot be conducted to accumulate knowledge about which ingredients are important for whom and under what conditions and (b) policy makers and program leaders might be misled about the fiscal and human resources required to achieve outcomes in applied contexts similar to those found in rigorous research studies, preventing the successful installation and scaling up of promising PD interventions. Enhanced documentation and reporting of the components of PD interventions and of coaching specifically should

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address three dimensions: content, structure, and process (Powell & Diamond, 2013; Snyder et al., 2011).

The content dimension represents the knowledge or teaching practices that are the PD foci. This dimension often includes information about developmentally appropriate child behaviors and teaching practices that support what children need to know or be able to do. The content dimension has been reported by researchers through the use of PD scripts, fidelity checklists, and printed manuals or guides for coaches and teachers (e.g., Powell & Diamond, 2013; Snyder et al., 2015).

The structural dimension characterizes the number, duration, frequency, and delivery format of PD, which make up the dose and intensity of implementation support. The structural dimension might also include a specified coaching framework, with defined components or activities designed to support teachers' acquisition of knowledge or use of teaching practices. The structural dimension can be operationalized and documented through the use of protocols, fidelity checklists, and self-report logs when explicit instruction is provided on how to record the frequency, duration, and contact with teachers (Durlak & DuPre, 2008; Snyder et al., 2015).

The process dimension is focused on *how* those who deliver PD, including coaches, use protocols and other implementation supports to facilitate interactions that promote teacher knowledge and use of teaching practices. The content and structural dimensions guide the composition of actions, behaviors, and materials used by the PD facilitator or coach. The process dimension maintains a degree of flexibility to respond to the knowledge, preferences, motivations, and learning goals of individual practitioners (Powell & Diamond, 2013; Snyder et al., 2015). Responsivity to each participant's learning history is aligned with the science of how people learn (National Academies of Sciences, Engineering, and Medicine [NASEM], 2018), but presents a challenge for accurate and feasible documentation. Fidelity checklists can be used to record adherence but often provide limited options for recording acceptable forms of variability.

A review of contemporary literature demonstrates direct behavioral observation coding systems hold promise for characterizing the process dimension of coaching, particularly the interactions that occur between the coach and teacher. Observational coding systems in early childhood PD primarily focus on two outcomes: (a) defining and describing the verbal behaviors of coaches as they interact with families and teachers during home-based or classroom coaching sessions and (b) examining the accuracy of coaches' self-report data. Researchers across several studies (e.g., Friedman et al., 2012; Oborn & Johnson, 2015) used a direct behavioral observation coding system aligned with the Family-Guided Routines-Based Intervention (FGRBI; Woods, 2005). The authors used procedures developed by Salisbury et al. (2008) to adapt the FGRBI checklist for video coding focused on nine coaching strategies. In these studies, the entire early intervention (EI) session is video-recorded and coded using a 30-s interval coding procedure. Participants were providers situated within a triadic coaching partnership, coaching families on their existing caseload around practices to support the child's Individualized Family Service Plan (IFSP).

Similar to Woods and colleagues, Campbell and Coletti (2013) examined EI providers' self-reported versus observed use of five coaching or "caregiver-teaching" strategies. Providers submitted self-selected video segments (i.e., 1–40 min) of EI sessions with families on their existing caseload. Providers and independent observers identified coaching strategies represented in each video segment. Inter-rater agreement was calculated to determine the extent to which providers could implement and accurately self-report their use of coaching strategies. Jayaraman et al. (2015) conducted an exploratory study of coach–teacher dyads' verbal and gestural behavior. Dyads were situated in preschool, child care, and home-based settings. This study differed from Woods and colleagues' research in that the sample included coach–teacher dyads in addition to triadic provider–family–child partnerships and coaches supported coachees around Individualized Education Programs (IEPs), IFSPs, classroom environments, and social-emotional development. Each coach submitted one video of a self-selected debrief meeting with an existing coachee on their caseload. Videos were coded using the *Early Childhood Coaching Conversations (ECCC*; Knoche & Bainter, 2012) interval coding system to examine the coach's implementation of 13 behaviors.

Overall, these studies have demonstrated the utility of direct behavioral observation coding systems for characterizing coaches' process behaviors within a coaching partnership. Specifically, these studies used partial-interval coding systems to look at coaching practices at a single occasion or in aggregate across occasions. The majority of available studies focused on triadic home-based settings to coach families around IFSP goals. Jayaraman et al. (2015) included some school-based teachers in their sample, but an identified set of teaching practices around which coaching occurred was not provided. None of the identified studies explored duration codes or practice-based coaching (PBC; Snyder et al., 2015).

In the present study, we sought to expand the available literature by exploring how seven coaches facilitated conversations with school-based preschool teachers about an identified set of evidence-based embedded instruction teaching practices within a 15-week PBC partnership. Specifically, we used a continuous timed-event video-based, direct behavioral observation coding system to investigate the (a) proportion of time spent in conversational foci, including who initiated the conversation; (b) type and rate of coach verbal behavior; and (c) whether conversation foci,

initiations, and coach verbal behavior varied across three occasions (i.e., early, middle, and late coaching sessions). The use of video-based direct behavioral observation coding systems to characterize the interaction behaviors of coaches and coachees has the potential to advance research focused on coaching processes by quantifying how coaches promote providers' or teachers' acquisition and use of practices in applied contexts, information that, in turn, could have instructional utility for coach PD.

## Method

### Study Context

Data used to conduct the present study were collected within the first year of a randomized controlled trial (RCT) focused on examining the effects of a PD intervention on preschool teachers' use of embedded instruction teaching practices with preschool children with disabilities. In Year 1, 44 preschool teachers from two southeastern states, located in proximity to two universities, were randomly assigned at each site to one of the three conditions: (a) 16 hr of workshops, implementation guides, a web-based multimedia tool kit, plus 1 week of onsite PBC ($n = 15$); (b) 16 hr of workshops, implementation guides and materials, a web-based multimedia tool kit, plus 1 week of web-mediated self-coaching ($n = 14$); or (c) district-provided PD ($n = 15$). The onsite PBC condition during Year 1 is the focus of the present study.

### Participants

In the RCT, 15 teachers were randomly assigned to the onsite PBC condition in the first year of the project. Each of the seven coaches worked with one to three teachers at their university-based site. For the present study, interactions during the debrief meeting between each coach and one teacher were coded. For each coach, the teacher who received the dose of coaching most aligned with the PBC protocol used in the RCT (i.e., one onsite coaching session per week for 15 consecutive school weeks) was selected for analyses in the present study. Teachers ($N = 7$) were credentialed public preschool teachers in four districts in two southeastern states. All teachers were White females between the ages of 23 to 54 years. All teachers held degrees in education; four teachers held a bachelor's degree and three teachers held a master's degree. All teachers had children with and without disabilities in their classroom. At the beginning of the study, teachers' experience working with children from the ages of birth to 5 years ranged from 1 month to 7 years.

Coaches in the present study ($N = 7$) were affiliated with one of two universities. All coaches were White females between the ages of 28 to 59 years. Six coaches had between 9 months to 30 years of experience as a classroom teacher or therapist working with children from the ages of birth to 5 years. One coach had second grade teaching experience. Six coaches held a master's degree or higher, five coaches held a teaching credential, and five coaches had prior coaching or consultative experiences. Fidelity of coaching implementation checklists were completed by trained project staff using video-recorded debrief meetings for a randomly selected 33% of all coaching sessions in the RCT. Coaches' fidelity of implementation of the PBC protocol was high. In the RCT, the mean percentage of PBC fidelity checklist indicators implemented in Year 1 was 91.4% ($SD = 5.8$) across all selected sessions and for dyads in the present study was 91.6% ($SD = 5.2$).

### Measures

*Coaching Practices Observation Tool—Research Version 1 (CPOT-RVI).* The CPOT-RVI is a continuous, timed-event, observational coding system designed to quantify the duration of coaching conversations, the proportion of coach and teacher initiations, and the rate of coach verbal behaviors (Shannon & Snyder, 2016). The operational definitions for the CPOT-RV1 codes are aligned with the essential components of the PBC framework. There are seven mutually exclusive and exhaustive duration codes (see Table 1). Five duration codes represent bidirectional conversation between the coach and the teacher, one code (i.e., *Summarizing*) represents consecutive statements made by the coach only, and *Uncodeable* indicates the video could not be coded (e.g., talk cannot be heard). The onset of a duration code occurs when the coach or teacher has three verbal turns with new focus. Coders then map backwards to indicate the onset. The offset of the duration code is triggered by the onset of a new code. *Initiation* is a binary code, which is used following the onset of a new duration code to signify whether the coach or teacher initiated the change in conversation focus. There are eight event codes, which provide information about the coach's verbal behavior (see Table 2). Event codes are counted at the onset of the first occurrence of a unique coach verbal behavior.

*Demographic questionnaire.* Teachers and coaches completed demographic questionnaires, and coaches submitted information about each coaching session (i.e., video of debrief meeting, coaching log, observation notes, action plan, follow-up email) as part of the RCT. The demographic and coaching session data were used to support teacher selection and the interpretation of the aggregate CPOT-RVI data in the present study.

### Procedures

*Coach training and support.* Prior to supporting teachers in the RCT, coaches attended 16 hr of training over 2 days

**Table 1.** Coaching Practices Observation Tool-Research Version 1.0 Operational Definitions—Conversation Focus (Duration Codes).

| Code | Operational definition |
|---|---|
| Personal/ Pleasantries | A verbal exchange initiated by the coach or teacher to engage in pleasantries or share personal information that is not related to the implementation of targeted teaching practices. |
| Coaching Process | A verbal exchange initiated by the coach or teacher where participants discuss the coaching process including individual roles, activities to be completed, scheduling, and materials. |
| Goal Setting and Action Planning | A verbal exchange initiated by the coach or teacher in which (a) goals or action steps are identified and revised AND/OR (b) the coach provides goal focused instruction designed to increase the teachers' capacity to implement targeted teaching practices. |
| Problem-Solving | A verbal exchange initiated by the coach or teacher to discuss a problem related to implementation of targeted teaching practices or children's individual needs are identified AND potential solutions to the identified problem are generated by the participants. |
| Reflection and Feedback | A verbal interaction initiated by the coach or teacher in which (a) participants engage in a discussion about what occurred during the observation AND (b) share their personal opinions, perspectives, or feelings related to the classroom or targeted teaching practices. |
| Summarizing | The coach makes three or more statements about what occurred in the observation OR summarizes what has occurred previously during the debriefing conversation. This code does not include any teacher talk. |
| Uncodeable | The coach or teacher behavior cannot be accurately recorded because one of the following events occurred for 5 or more seconds: (a) Out of frame—the coach or the teacher leaves the frame of the camera; (b) Talk is directed to someone other than the participating coach or teacher. |

**Table 2.** Coaching Practices Observation Tool-Research Version 1.0 Operational Definitions—Coach Verbal Behaviors (Event Codes).

| Code | Operational definition |
|---|---|
| Neutral Statements | The coach makes neutral verbal statements of two or more words. |
| General Praise | The coach provides general positive statements or statements of agreement about something the teacher said or did during the observation or a product (e.g., planning form) the teacher made that is aligned with the implementation of targeted practices or classroom quality. |
| Supportive Feedback | The coach provides specific praise by describing positive aspects of something the teacher said or did during the observation, or a product (e.g., planning form) the teacher made that is aligned with the implementation of targeted teaching practices or classroom quality. |
| Constructive Feedback | The coach responds to something the teacher said or did during the observation or a product (e.g., planning form) the teacher made that is either not aligned with targeted teaching practices or not implemented as intended by providing guidance on how to enhance implementation fidelity. |
| Instructional Statements | The coach makes statements to inform or teach about how to enhance future implementation of the targeted teaching practices or classroom quality. |
| Clarifying Questions | The coach asks the teacher a question to confirm understanding, actions, or scheduling. |
| Probing Questioning | The coach asks the teacher a question to encourage him/her to share personal opinions, perspectives, or feelings related to the classroom, target children, or target practices. |
| Demonstration | The coach engages in role-play OR provides a live verbal model of how to implement a practice. |

focused on the content, structure, and coaching processes that would be used to facilitate teachers' use of embedded instruction teaching practices. The coach training was facilitated by two university-based principal investigators and the lead coach. The coach training included an introduction to the teaching practices (4 hr) and how to use PBC to support teacher's use of the teaching practices (12 hr) including (a) how to implement the PBC framework following the project-developed protocol and fidelity checklist (coaching log), (b) coaching practices designed to facilitate teacher participation in the collaborative partnership, and (c) supplemental materials to inform coaching. The coach training employed active learning strategies including (a) videos of preschool teachers implementing embedded instruction practices and coach–teacher dyads engaged in PBC, (b) guided practice using embedded instruction planning forms, and (c) role-play using PBC protocols with performance-based feedback.

*Ongoing implementation support for coaches.* Throughout onsite coaching within the RCT, coaches received group and individual feedback and support. Coaches participated

in two meetings each week (~60-min each). One meeting was with their university-based coaching team (approximately six people) and the other was with the cross-site coaching team (~12 people). Meetings included the coaches, investigators, and project coordinators of the RCT. During these meetings, content, structure, and process features of coaching were discussed. Coaches shared celebrations, problem-solved around implementation challenges, discussed strategies and resources for supporting teachers to implement the embedded instruction teaching practices, and received clarifications and feedback about the average fidelity of implementation of the coaching protocol. Coaches also received individual fidelity feedback by email on a minimum of three occasions throughout the year. As needed, coaches received additional feedback and support to ensure their coaching protocol fidelity of implementation was at or above 80%. Fidelity feedback was provided by the project coordinator and principal investigators about the coach's ability to (a) implement protocol indicators, (b) accurately record protocol indicators and coaching strategies implemented, and (c) write a follow-up email to the teacher summarizing the debrief meeting using the email protocol. Feedback included strengths, specific indicators to review, and recommendations for aligning coaching practices with the PBC framework.

*PD intervention: Embedded instruction teaching practices.* Embedded instruction is an intentional and systematic instructional approach for promoting children's acquisition, maintenance, and generalization of skills that support access to and participation in the general preschool curriculum (Snyder et al., 2018). Preschool teachers enrolled in the onsite PBC condition of the RCT attended four, 4-hr workshops on embedded instruction teaching practices. During the workshops, teachers participated in knowledge- and application-focused activities with in situ support and feedback from their coach.

*Onsite PBC.* When implemented with fidelity, PBC has demonstrated efficacy in supporting preschool teachers to implement and sustain their use of select teaching practices (e.g., Hemmeter et al., 2016; Snyder et al., 2018). Snyder et al. (2015) define PBC as "a cyclical process for supporting preschool teachers' use of effective teaching practices that lead to positive outcomes for children" (p. 2). PBC is composed of three cyclical components: (a) shared goals and action planning, informed by a strengths and needs assessment; (b) focused observation; and (c) reflection and feedback. The PBC components occur within the context of a collaborative partnership and focus on a set of evidence-based teaching practices (Figure 1).

In the RCT, the teaching practices were focused on embedded instruction and the PBC cycle included 15 onsite coaching sessions plus an orientation and closing meeting.

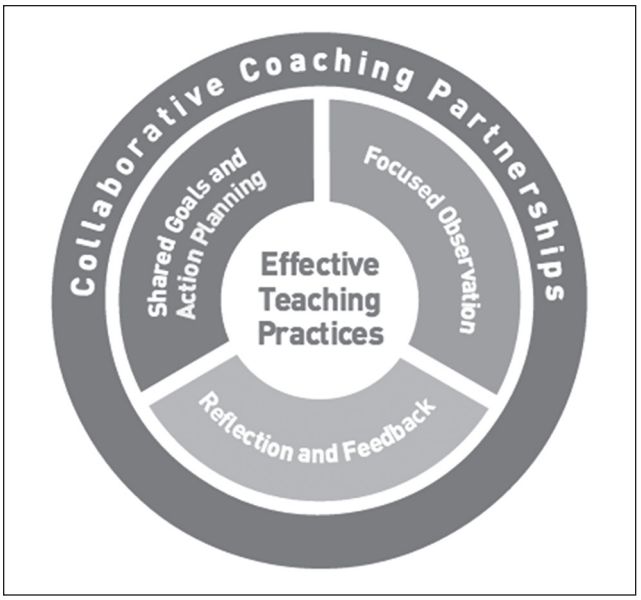


**Figure 1.** Components of the practice-based coaching framework (Snyder et al., 2015).

Each session was composed of a focused observation (~60 min), followed by a debrief meeting (~30–60 min) guided by a project-developed coaching protocol and an action plan. Action plans were informed by a strengths and needs assessment, written collaboratively by the coach and teacher, and updated across sessions. The action plan was composed of five parts: (a) the teachers' goal for implementing embedded instruction teaching practices, (b) a criterion statement to determine when the goal had been met, (c) action steps for achieving the goal, (d) resources needed, and (e) a timeline. During the focused observation, the coach recorded video or took qualitative and quantitative notes about the teacher's action plan goal and his or her implementation of embedded instruction teaching practices. Following the focused observation, the coach and teacher met to debrief. The debrief meeting was a dyadic transactional exchange between the coach and teacher designed to facilitate teacher reflection and problem-solving, provide supportive and constructive performance-based feedback, and to plan for future implementation guided by the action plan and the embedded instruction teaching practices. Following each debrief meeting, the coach sent an email aligned with the project-developed protocol to summarize feedback and next steps.

*Video selection.* Coaches video-recorded all debrief meetings within the RCT. In Year 1 of the RCT, debrief meetings were 48 min on average (range: 13–118 min) and for the debrief meetings in the present study, 45 min on average (range: 26–73 min). Coaching videos were blocked into three occasions representing early (1–5), middle (6–10),

and late (11–15) sessions to obtain a representative sample for the present study. One video was randomly selected from each occasion for each coach–teacher dyad, and no consecutive sessions were selected within each dyad. There were seven videos for each occasion, 21 videos total.

*Video coding.* The CPOT-RVI was applied to video-recorded debrief meetings using Observer XT 12.5® behavioral coding and analytic software. Coders viewed each video twice. During the first pass, the coder scored the occurrence of coach verbal behavior. During the second pass, the coder scored the duration of conversation focus, including whether the coach or teacher initiated the conversation focus. The data produced through the application of the CPOT-RVI codes were quantified to determine (a) the amount of time spent during the debriefing meeting in each conversation focus, (b) how often each participant initiated the conversation focus, and (c) how often coaches used the verbal behaviors during the debriefing meeting. Duration and verbal behavior data were subsequently integrated to determine the rate of verbal behavior and use of particular verbal behaviors during each conversation focus. Coach verbal behavior, duration of conversation foci, and initiations were also calculated at each sampling occasion to explore variability over time. Additional information about this measure can be found in the CPOT-RVI manual (Shannon & Snyder, 2016).

*Interobserver agreement (IOA).* The primary coder was the first author and a coach within the RCT. The secondary coder was a master's student in counselor education with preschool teaching experience. The secondary coder was trained to conduct point-by-point IOA (Yoder et al., 2018) for the CPOT-RVI. Agreement was defined as both coders selecting the same verbal behavior, duration, or initiation code using a 5-s agreement window. Agreement was calculated as the ratio of agreements to the sum of agreements and disagreements multiplied by 100. Prior to coding for the study, the secondary coder coded five videos with a minimum of three of the five videos at or above 80% agreement overall and for each duration and event code. The secondary coder coded 48% ($n = 10$) of the 21 videos. IOA was calculated for seven randomly selected videos, plus three additional videos that included the primary coder as the coach. Following the fourth IOA video, overall IOA for two consecutive videos was below 80% and the secondary coder received a booster session. The overall mean percentage for the 10 IOA sessions was 85 (range: 66–94). The mean IOA percentage scores averaged across the 10 IOA sessions ranged from 71 to 100 for duration codes, 55 to 100 for the initiation codes, and 62 to 81 for the event codes. Kappa was calculated as the ratio of expected agreements to the sum of possible agreements (Cohen, 1960). The average Cohen's kappa across the 10 IOA sessions was 0.79 (range: 0.56–0.93), suggesting moderate to strong agreement.

## Results

Results are presented by duration of conversation focus category, coach versus teacher initiation, and coach verbal behavior. Within each section, the data are presented across the 21 video-recorded observations and by occasion (i.e., early, middle, late). Integration of duration and verbal behavior data are also provided to characterize the type of verbal behavior by conversation focus. Across the 21 debrief meetings, 936 min of footage was coded. Twenty-five minutes or 2.6% of the total time was coded as *Uncodeable* (e.g., sound not audible, consented participants answered phone) and excluded from the analyses.

### Duration of Conversation Foci

The CPOT-RVI includes six duration codes, plus *Uncodeable* (see Table 1). The percent of time in each conversation focus at each occasion (i.e., early, middle, late) and across occasions is shown in Table 3. The majority of the debrief meeting time was spent in *Reflection and Feedback* (42.7%), followed by *Goal Setting and Action Planning* (33.6%). From Occasion 1 to 3, the proportion of time spent in *Personal/Pleasantries, Coaching Process*, and *Summarizing* decreased and the proportion of time spent in *Problem-Solving* increased.

### Coach Versus Teacher Initiation

The *Initiation* code is a binary forced response code following the onset of one of the six duration codes. It was used to identify who within the dyad initiated the onset of a new conversation focus. *Uncodeable* did not receive a coach or teacher initiation code. The initiation of a new conversation focus was recorded on 365 occasions across the 21 coded sessions. The overall percentage of coach versus teacher initiations was 77 and 23, respectively. From Occasion 1 to Occasion 3, the overall percentage of coach-initiated conversation foci decreased. The percent of coach and teacher initiations across occasions for each code is shown in Table 3. Coaches were more likely to initiate all conversation foci with the exception of *Problem-Solving*.

### Coach Verbal Behavior

The CPOT-RVI includes eight verbal behavior event codes (see Table 2). Coach verbal behavior is presented as rate per 30 min, consistent with the recommended duration for the debrief meeting in the RCT PBC protocol. Coaches' average rate of verbal behavior per 30 min across all verbal behavior codes was 104.3 ($SD = 23.5$, range: 72.0–133.0). The average rate of coach verbal behavior per 30 min for each code is shown in Table 4. The rate of coach verbal behavior across the three occasions was analyzed to evaluate whether changes were evident. Across occasions, there was an increase in

**Table 3.** Percent of Time in Conversation Foci and Coach Versus Teacher Initiations Across Occasions.

| Conversation focus | Occasion 1 *M* = 51 min (*SD* = 14.4) | Occasion 2 *M* = 44 min (*SD* = 12.3) | Occasion 3 *M* = 42 min (*SD* = 16) | Overall *M* = 45 min (*SD* = 14.2) |
|---|---|---|---|---|
| Personal/Pleasantries | | | | |
| Time | 1.4 | 1.2 | 1.0 | 1.2 |
| Coach | 81.8 | 90.9 | 62.5 | 80.0 |
| Teacher | 18.2 | 9.1 | 37.5 | 20.0 |
| Coaching Process | | | | |
| Time | 11.2 | 10.9 | 8.8 | 10.4 |
| Coach | 93.8 | 85.7 | 68.8 | 83.0 |
| Teacher | 6.3 | 14.3 | 31.3 | 17.0 |
| Goal Setting and Action Planning | | | | |
| Time | 39.2 | 23.2 | 36.6 | 33.6 |
| Coach | 79.2 | 88.2 | 76.5 | 80.0 |
| Teacher | 20.8 | 11.8 | 23.5 | 20.0 |
| Problem-Solving | | | | |
| Time | 4.3 | 4.2 | 9.7 | 5.9 |
| Coach | 75.0 | 33.3 | 42.9 | 50.0 |
| Teacher | 25.0 | 66.7 | 57.1 | 50.0 |
| Reflection and Feedback | | | | |
| Time | 36.3 | 54.8 | 39.0 | 42.7 |
| Coach | 74.4 | 61.9 | 62.3 | 65.9 |
| Teacher | 25.6 | 38.1 | 37.7 | 34.1 |
| Summarizing | | | | |
| Time | 7.7 | 5.6 | 4.8 | 6.2 |
| Coach | 100.0 | 100.0 | 100.0 | 100.0 |
| Teacher | 0.0 | 0.0 | 0.0 | 0.0 |

*Note.* Across the 21 coaching debrief meetings, 936 min of footage was coded. Twenty-five minutes or 2.6% of the total time was Uncodeable and excluded from the analyses. Each occasion included seven videos, one per dyad.

**Table 4.** Rate of Coach Verbal Behavior Per 30 Mins Across Occasions.

| Coach verbal behavior | Occasion 1 | Occasion 2 | Occasion 3 | Overall |
|---|---|---|---|---|
| Neutral Statement | 55.0 | 66.4 | 64.1 | 61.2 |
| General Praise and Agreement | 9.7 | 9.9 | 10.4 | 10.0 |
| Supportive Verbal Feedback | 3.7 | 1.7 | 2.9 | 2.8 |
| Constructive Verbal Feedback | 2.5 | 3.7 | 3.3 | 3.1 |
| Instructional Statements | 8.3 | 7.9 | 12.5 | 9.5 |
| Clarifying Questions | 15.3 | 11.0 | 13.6 | 13.5 |
| Probing Questions | 5.1 | 3.2 | 5.1 | 4.5 |
| Demonstration | 1.9 | 1.2 | 2.9 | 2.0 |

*Note.* Each occasion included seven videos, one per dyad.

the rate of coach verbal behavior in *General Praise and Agreement, Constructive Verbal Feedback, Instructional Statements*, and *Demonstration* and a decrease in *Supportive Verbal Feedback* and *Clarifying Questions*.

## *Rate of Coach Verbal Behavior by Conversation Focus*

The rate of each verbal behavior per 30 min within each conversation focus was calculated to capture not only the form of the coach verbal behavior but also its function within the coaching process. The results of these analyses are shown in Table 5 and in the parenthetical below. The rate of coach verbal behavior is an indication of the number of times coaches engaged in each of the eight verbal behaviors. *General Praise and Agreement* (PA) and *Supportive Verbal Feedback* (SF) occurred within all conversation foci and most often during *Reflection and Feedback* (PA = 15.2 and SF = 3.9) and *Summarizing* (PA = 11.8 and SF = 12.9). Similarly, *Constructive Verbal Feedback* occurred often

**Table 5.** Rate of Coach Verbal Behavior Within Each Conversation Focus Per 30 Mins.

| | Conversation foci | | | | | |
|---|---|---|---|---|---|---|
| Coach verbal behavior | PP | CP | GS | PS | RF | SM |
| Neutral Statement | 160.9 | 88.7 | 54.4 | 54.4 | 59.3 | 51.4 |
| General Praise and Agreement | 10.9 | 2.2 | 6.3 | 5.0 | 15.2 | 11.8 |
| Supportive Verbal Feedback | 2.7 | 0.6 | 0.7 | 0.6 | 3.9 | 12.9 |
| Constructive Verbal Feedback | 0.0 | 0.3 | 1.2 | 2.8 | 5.6 | 2.7 |
| Instructional Statements | 0.0 | 2.5 | 14.1 | 18.3 | 8.0 | 0.0 |
| Clarifying Questions | 16.4 | 30.0 | 14.3 | 7.2 | 11.2 | 2.7 |
| Probing Questions | 5.5 | 3.5 | 6.4 | 3.9 | 4.0 | 0.0 |
| Demonstration | 0.0 | 0.1 | 0.3 | 0.6 | 0.4 | 0.2 |

*Note*. PP = Personal/Pleasantries; CP = Coaching Process; GS = Goal Setting and Action Planning; PS = Problem-Solving; RF = Reflection and Feedback; SM = Summarizing.

during *Reflection and Feedback* (5.6) and *Summarizing* (2.7) but also occurred frequently during *Problem-Solving* (2.8). *Instructional Statements* most often occurred within *Problem-Solving* (18.3) and *Goal Setting and Action Planning* (14.1). *Clarifying Questions* and *Probing Questions* occurred within all conversation foci, except *Summarizing. Clarifying Questions* occurred most often during the *Coaching Process* (30.0), while *Probing Questions* occurred most often within *Goal Setting and Action Planning* (6.4). *Demonstrations* occurred at the lowest rate overall and occurred most often during *Problem-Solving* (0.6).

## Discussion

When implemented with fidelity, PBC has demonstrated efficacy in supporting preschool teachers to implement and sustain their use of select teaching practices (Hemmeter et al., 2016; Snyder et al., 2018). The present study explored how coaches facilitated conversations during the debrief meeting component of a PBC coaching partnership. The CPOT-RVI, a direct behavioral observation coding system aligned with essential components of the PBC framework, was used to investigate (a) the proportion of time allocated to different conversational foci, including who initiated the focus, and (b) the verbal behaviors used by coaches to support teachers' active participation in planning for, implementing, and evaluating the teaching practices that were the focus of coaching. Descriptive methods were used to determine whether the conversation foci, coach and teacher initiations, and verbal behaviors changed across the three occasions (i.e., early, middle, late) for seven coach–teacher dyads.

### *Duration of Conversation Focus*

Findings related to the duration of conversation focus showed dyads engaged in all categories of conversation foci and spent the largest proportion of time in *Reflection and Feedback* (42.7%), followed by *Goal Setting and Action Planning* (33.6%). These conversation foci align with two components of the PBC framework that lead to noteworthy changes in teachers' use of practices (e.g., Snyder et al., 2015). Dyads also spent a small proportion of time in *Personal/Pleasantries* (1.2%) at each occasion suggesting that most dyads continued to build rapport and briefly share nonclassroom-related interests as part of their collaborative partnership. Results from the present study provide further evidence that coaches can implement the PBC framework as intended when provided with a structured protocol, initial training plus ongoing support, and performance-based feedback (Durlak & DuPre, 2008; Snyder et al., 2015).

On average, distribution of debrief meeting time in the present study was well aligned with the coaching protocol indicators. A consistent coaching protocol was used for all sampled occasions, yet across occasions and dyads, variability in the proportion of time spent in each conversation focus was observed. These data suggest that coaches can have high fidelity to the protocol (i.e., content and structural dimensions) while still individualizing the process dimension by dedicating more or less time to a particular conversation foci in response to the teacher's implementation of practices during the focused observation, the current action plan goal, or context-based needs (e.g., child behavior, new adults in classroom) and motivations (e.g., supports or challenges from administrators and staff), which often change across time.

### *Coach and Teacher Initiation*

There was an increase in teacher initiations for most conversation foci from Occasion 1 (i.e., early) to Occasion 3 (i.e., late). As teachers increased their initiations, coaches accommodated by following the teachers' lead and continuing conversation foci initiated by the teacher. The largest percent of teacher-initiated conversations focused on *Problem-Solving*

followed by *Reflection and Feedback*. These conversation foci might have been initiated more often by teachers because they provided access to coach support to address an immediate need within the teacher's classroom. In prior studies of teachers' perspectives about PBC, preschool teachers reported that they rarely had access to ongoing performance-based feedback and support to address dilemmas in their classrooms, in particular from someone who was knowledgeable about early childhood classrooms (Shannon et al., 2015).

Mutual adaptation in interactions between the coach and teacher was also seen in the *Coaching Process* conversation focus across the three occasions. The duration of time spent in the *Coaching Process* decreased across occasions. Dyads dedicated less time to roles and responsibilities as the collaborative partnership developed. However, when *Coaching Process* conversations did occur, they were increasingly initiated by the teacher from Occasion 1 (6.3%) to Occasion 3 (31.3%). Developments within the *Coaching Process* conversation foci suggest teachers became more proficient in their ability to identify next steps for implementation and to articulate how they wanted the coach to provide support within the partnership over time.

## Coach Verbal Behavior

Coaches consistently used the PBC protocol verbal behaviors (i.e., *Supportive Verbal Feedback, Constructive Verbal Feedback, Clarifying Questions*) across all three occasions observed and coded for the present study. Providing supportive performance-based feedback about the teacher's demonstration of actions or behaviors associated with overall classroom quality, and the use of targeted teaching practices is an essential component of PBC. Within the CPOT-RVI coding system, positive feedback was captured through the use of two verbal behavior codes: (a) *Supportive Verbal Feedback* and (b) *General Praise and Agreement*. Overall, *Supportive Verbal Feedback* occurred, on average, at a rate of 2.8 times per 30 min, while the rate of *General Praise and Agreement* occurred, on average, 10 times per 30 min. *Supportive Verbal Feedback* occurred, on average, at the highest rate during the *Summarizing* conversation focus, while *General Praise and Agreement* occurred, on average, at the highest rate during *Reflection and Feedback*.

Of note, *Supportive Verbal Feedback* is more likely than *General Praise and Agreement* to support teachers to acquire knowledge and use of teaching practices (Casey & McWilliam, 2011). *Supportive Verbal Feedback* describes specific teaching practices observed by the coach and, in many cases, why maintaining and generalizing those practices would support positive child outcomes (e.g., By tapping the shelf along with your verbal direction "Put the car *on* the shelf," you helped Ziya to understand and demonstrate her knowledge of the positional word "*on*."). In contrast, *General Praise and Agreement* is a general acknowledgment of teacher actions observed by the coach (e.g., Great job with Ziya today!), but it does not support the teacher to know the attributes of his or her actions that make them positive or generalizable to future application in the classroom setting.

Both *Supportive Verbal Feedback* and *General Praise and Agreement* were addressed in the PBC coach training and through ongoing fidelity feedback within the RCT. Nevertheless, implementation fidelity measured by the fidelity checklist (coaching log) was a binary code recording adherence, that is, whether *Supportive Verbal Feedback* occurred or did not occur. The fidelity coding system in the RCT did not account for the rate of this verbal behavior within each debrief meeting. Coaches may need additional training and support to distinguish between forms of positive feedback. They might also benefit from training to increase the frequency of *Supportive Verbal Feedback* by not only developing and delivering planned *Supportive Verbal Feedback* in the form of *Summarizing* statements but also increasing their capacity to respond to teacher's reflections about the classroom observation.

*Constructive Verbal Feedback* serves a complimentary role to *Supportive Verbal Feedback* within the PBC framework. It increases the teachers' knowledge of teaching practices, supporting them to self-assess their current use of the practices and to identify ways to enhance current implementation or acquisition and mastery of new teaching practices (Snyder et al., 2015). Several studies have demonstrated the importance of providing both supportive and constructive feedback concurrently when helping teachers acquire and master the use of new teaching practices (e.g., Oborn & Johnson, 2015; Snyder et al., 2018). In the absence of *Constructive Verbal Feedback*, teachers may not be aware that they are not implementing a teaching practice with fidelity (Shannon et al., 2015). They are also apt to abandon a practice because they do not see immediate positive outcomes as a result of their implementation or do not have access to implementation support (Kretlow & Bartholomew, 2010).

*Constructive Verbal Feedback* occurred, on average, 3.1 times per 30 min, complementing the *Supportive Verbal Feedback*, which occurred, on average, 2.8 times per 30 min. The highest rates of *Constructive Verbal Feedback* occurred during transactional conversation foci including *Reflection and Feedback* (5.6) and *Problem-Solving* (2.8). One strength of the relationship between the provision of constructive feedback and these conversation foci is that adult learners benefit most from feedback when they can respond through dialogue and have ample opportunity to express thoughts, concerns, or questions (NASEM, 2018). *Constructive Verbal Feedback* was also delivered (2.7 times per 30 min) in the context of *Summarizing*, a coach-talk-only conversation focus. What is unknown from these data, and

worthy of further exploration, is whether *Constructive Verbal Feedback* delivered in the context of *Summarizing* statements was followed by a transactional conversation focus.

Two types of questioning verbal behavior were recorded, *Clarifying Questions* and *Probing Questions*. Both types of questions are appropriate within the debrief meeting. On average, *Probing Questions* occurred 4.5 times per 30 min, while *Clarifying Questions* occurred 13.5 times per 30 min. Both types of questions occurred across most conversation foci, signifying the coaches' efforts to engage the teachers by eliciting their perspectives throughout the debrief meeting. Although both *Probing Questions* and *Clarifying Questions* can elicit teacher participation, the types of questions posed might have an important role in prompting teachers to engage in self-reflection and evaluation. Moyers and colleagues (2007) found open-ended or probing questioning focused on change (e.g., What would have made block play more successful for embedded learning opportunities for Kisharra?) increased the probability of participants' openness to changing their behavior. *Probing Questions* occurred at the highest rate during *Goal Setting and Action Planning* (6.4 per 30 min), a logical and strategic time for eliciting the teachers' perspective about future goals. The use of *Probing Questions* during this conversation focus ensured coaches were eliciting the teachers' perspective about their implementation of teaching practices. Teacher talk in this conversational focus and others including *Reflection and Feedback* (4.0 per 30 min) and *Problem-Solving* (3.9 per 30 min) also allowed the coach to address teachers' individual needs, misunderstandings, or implementation challenges.

## Implications

Our findings contribute to understanding interactions that occur during PBC debrief meetings. These data help address the identified need for additional information about coaching processes situated in the context of coaching content and structures. Our data also support the development of coaching implementation supports as a part of coach-based PD. First, operationally defining the key components of a coaching framework and providing coaches with PD, ongoing fidelity feedback, and coaching implementation supports is likely to be associated with fidelity of implementation of the coaching protocol and, in turn, teachers' fidelity of implementation of the teaching practices. These findings are consistent with a broader effort to advance the science of PD in early childhood, including coaching, by clearly defining the content, structure, and processes used as an independent variable in research (Powell & Diamond, 2013; Snyder et al., 2011). This also applies in practice, as states and programs seek to adopt interventions that are scalable, efficient, and cost-effective for enhancing the quality of early childhood experiences and child outcomes (Artman-Meeker et al., 2015; Zaslow et al., 2010). PBC is an evidence-based framework for implementing coaching. It employs key tenants from the science of how people learn (NASEM, 2018) and organizational behavior management (Daniels & Bailey, 2014), has operationally defined components, and has demonstrated efficacy in achieving teacher and child outcomes across a variety of teaching practices and contexts (Snyder et al., 2015). The extent to which coaching has measurable and replicable effects on teachers' use of evidence-based teaching practices is contingent on coaches implementing an evidence-based coaching framework, such as PBC, with fidelity.

Second, as coaching continues to be provided to support implementation of evidence-based practices for teachers with varied educational and experiential backgrounds, it will be important to use evidence-based coaching frameworks that provide coaches with sufficient structure, yet allow necessary variability to meet teachers' knowledge, preferences, motivations, and individual goals. In the present study, controlled doses of coaching were provided, although coaching processes varied across teachers and over time. Coach-based PD supports used to aid teachers' acquisition or enhancement of practices should be documented to increase the capacity to replicate findings and develop acceptable thresholds of process adaptations (e.g., more or less constructive feedback, duration of debrief). Systematic documentation of coach processes, as well as the environmental factors which influence their success (e.g., leadership, policies), is needed to scale up coach-based PD initiatives (Artman-Meeker et al., 2015; Snyder et al., 2012).

Third, the present study contributes a continuous, timed-event, observational coding system that can be used to explore the observed duration of conversation focus, coach–teacher initiations, rate of coach verbal behavior, and change in these variables across time. Previous research of coaching interactions employing observational coding systems used interval systems (Campbell & Coletti, 2013; Jayaraman et al., 2015; Salisbury et al., 2012). The use of interval coding has the potential to overrepresent or underrepresent the occurrence of behaviors, whereas continuous timed-event coding is a preferred behavior sampling method (Yoder et al., 2018). In addition, previous studies coded only coach behaviors, not the conversation focus during which the verbal behavior was used. By including information about conversation focus, it is possible to make inferences about the function of the coaches' verbal behavior. For example, data in the present study show that not only did *Probing Questions* occur, but information was gathered about whether coaches used these questions to engage teachers in reflection about their current implementation of teaching practices or to guide the development of future action plans. In addition, the documentation of coach and teacher initiations is a small, but important first step, in

examining how roles within the PBC collaborative partnership evolve.

Finally, the present study differs from prior coaching studies employing observational coding systems in that it delimited the factors influencing the coaching partnership. All coaches and teachers focused on a common set of embedded instruction teaching practices and all teachers worked in school-based preschool classrooms. The 15-week duration of the coaching partnership was uniform, and occasions sampled represented early, mid, and late debrief meetings to explore change over time, as opposed to meetings being coach selected and representing a single occasion (Campbell & Coletti, 2013; Jayaraman et al., 2015).

### *Limitations and Recommendations for Future Research*

Several limitations of this study should be noted and receive attention in future research. First, an extension of the present study might include a larger and more diverse sample. Within the present study, one teacher was paired with each coach. Given the transactional nature of the collaborative PBC coaching partnership, it would be beneficial to determine if coaches engage in similar conversation foci and verbal behaviors across teachers or if characteristics of the teacher (e.g., novice versus veteran) appear to influence the coach's behavior. In the present study, coaches were university based. Although the PBC framework has been scaled and implemented outside of applied research studies, data should be collected for indigenous coaches to explore whether similar patterns of conversation focus, interactional leads, and coach verbal behavior are present. Learning about the extent to which indigenous coaches maintain fidelity to the protocol, engage in similar conversation foci, use similar behaviors when provided with similar supports, and find the PBC framework acceptable, feasible, and useful would be important to programs and states considering the installation of PBC to support early childhood practitioners' use of evidence-based practices. In addition, it will be important to document how the knowledge and skills of leadership teams and organizational policies influence the coaches' ability to achieve desired teacher and child outcomes (Durlak & DuPre, 2008).

Second, the CPOT-RVI was developed, piloted, and applied in the present study. The use of the coding system has not been replicated across multiple evidence-based teaching practices or coders. Third, the CPOT-RVI IOA data in the present study suggest the need to refine further the codes, particularly those focused on distinguishing between implementation adherence and quality or instructional utility to the teacher. Areas of concern for fidelity were (a) detecting teacher initiations, (b) distinguishing between *Coaching Process* and *Goal Setting and Action Planning*, and (c) discriminating between similar codes with small but important qualitative differences such as *Constructive Verbal Feedback* and *Instructional Statements*. For example, *Constructive Verbal Feedback*, as operationally defined in the CPOT-RVI, is hypothesized to have greater utility for the teacher because it connects the coach's recommendations for enhanced practice implementation to an observed teacher action, such that in the future under similar conditions, the teacher will know when and how to use a practice effectively. Instructional statements also provide recommendations for enhancement but may have less utility for the teacher because they are not explicitly linked to an observed action making it less clear for the teacher when and how to apply recommendations. These nuanced differences require clarification in the CPOT-RVI manual and training for coders. Fourth, the CPOT-RVI focuses primarily on coach verbal behaviors rather than verbal behaviors of the teacher, an important consideration within a transactional collaborative partnership.

## Conclusion

The CPOT-RVI is a direct behavioral observation coding system aligned with the evidence-based coaching practices that are essential to implementing PBC with fidelity. Findings from the present study provide important information about the extent to which a structured coaching protocol, like the one used within the RCT, supports coaches to implement an evidence-based coaching framework with fidelity. Furthermore, it contributes to ongoing efforts to understand how structured protocols can be implemented with fidelity while tolerating variability designed to meet the unique needs of individual teachers. Coaching has the potential to play a powerful role in supporting teachers to use evidence-based teaching practices and, in turn, improve child outcomes. To consistently achieve these more distal impacts, the field must begin by better defining the active ingredients of coaching designed to catalyze change.

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### References

Artman-Meeker, K., Fettig, A., Barton, E. E., Penney, A., & Zeng, S. (2015). Applying an evidence-based framework to the early

childhood coaching literature. *Topics in Early Childhood Special Education*, *35*, 183–196.

Campbell, P. H., & Coletti, C. E. (2013). Early intervention provider use of child caregiver-teaching strategies. *Infants & Young Children*, *26*, 235–248.

Casey, A. M., & McWilliam, R. A. (2011). The characteristics and effectiveness of feedback interventions applied in early childhood settings. *Topics in Early Childhood Special Education*, *31*, 68–77.

Cohen, J. (1960). A coefficient of agreement for nominal scales. *Educational and Psychological Measurement*, *20*(1), 37–46.

Daniels, A. C., & Bailey, J. S. (2014). *Performance management: Changing behavior that drives organizational effectiveness* (5th ed.). Performance Management.

Durlak, J. A., & DuPre, E. P. (2008). Implementation matters: A review of research on the influence of implementation on program outcomes and the factors affecting implementation. *American Journal of Community Psychology*, *41*, 327–350.

Friedman, M., Woods, J., & Salisbury, C. (2012). Caregiver coaching strategies for early intervention providers: Moving toward operational definitions. *Infants & Young Children*, *25*(1), 62–82.

Hemmeter, M. L., Snyder, P. A., Fox, L., & Algina, J. (2016). Evaluating the implementation of the Pyramid Model for promoting social-emotional competence in early childhood classrooms. *Topics in Early Childhood Special Education*, *36*(3), 133–146.

Jayaraman, G., Marvin, C., Knoche, L., & Bainter, S. (2015). Coaching conversations in early childhood programs: The contributions of coach and coachee. *Infants & Young Children*, *28*, 323–336.

Knoche, L., & Bainter, S. (2012). *Early childhood coaching conversation codes* [Unpublished manuscript]. Nebraska Center for Research on Children, Youth, Families and Schools, University of Nebraska–Lincoln.

Kretlow, A. G., & Bartholomew, C. C. (2010). Using coaching to improve the fidelity of evidence-based practices: A review of studies. *Teacher Education and Special Education: The Journal of the Teacher Education Division of the Council for Exceptional Children*, *33*, 279–299.

Moyers, T. B., Martin, T., Christopher, P. J., Houck, J. M., Tonigan, J. S., & Amrhein, P. C. (2007). Client language as a mediator of motivational interviewing efficacy: Where is the evidence? *Alcoholism: Clinical and Experimental Research*, *31*, 40–47.

National Academies of Sciences, Engineering, and Medicine. (2018). *How people learn II: Learners, contexts, and cultures*. The National Academies Press. https://doi.org/10.17226/24783

Oborn, K. M., & Johnson, L. D. (2015). Coaching via electronic performance feedback to support home visitors' use of caregiver coaching strategies. *Topics in Early Childhood Special Education*, *35*(3), 157–169.

Powell, D. R., & Diamond, K. E. (2013). Studying the implementation of coach-based professional development. In T. Halle, A. Metz, & I. Martinez-Beck (Eds.), *Applying implementation science in early childhood programs and systems* (pp. 97–116). Brookes.

Salisbury, C., Cambray-Engstrom, E., & Woods, J. (2012). Providers' reported and actual use of coaching strategies in natural environments. *Topics in Early Childhood Special Education*, *32*, 88–98.

Salisbury, C., Cambray-Engstrom, E., Woods, J., & Friedman, M. (2008). *Routine and instructional strategy coding protocol-IL* [Unpublished manuscript]. Child & Family Development Center, University of Illinois at Chicago.

Shannon, D., & Snyder, P. (2016). *Coaching Practices Observation Tool: Research Version I (CPOT-RVI)* [Manual and training videos] [Unpublished instrument]. Anita Zucker Center for Excellence in Early Childhood Studies, University of Florida.

Shannon, D., Snyder, P., & McLaughlin, T. (2015). Preschool teachers' insights about web-based self-coaching versus on-site expert coaching. *Professional Development in Education*, *41*, 290–309.

Snyder, P., Hemmeter, M. L., & Fox, L. (2015). Supporting implementation of evidence-based practices through practice-based coaching. *Topics in Early Childhood Special Education*, *35*, 133–143.

Snyder, P., Hemmeter, M. L., & McLaughlin, T. (2011). Professional development in early childhood intervention: Where we stand on the silver anniversary of PL 99-457. *Journal of Early Intervention*, *33*, 357–370.

Snyder, P., Hemmeter, M. L., McLean, M., Sandall, S., McLaughlin, T., & Algina, J. (2018). Effects of professional development on preschool teachers' use of embedded instruction practices. *Exceptional Children*, *84*(2), 213–232.

Snyder, P., Hemmeter, M. L., Meeker, K. A., Kinder, K., Pasia, C., & McLaughlin, T. (2012). Characterizing key features of the early childhood professional development literature. *Infants & Young Children*, *25*(3), 188–212.

Winton, P. J., Snyder, P., & Goffin, S. (2015). Beyond the status quo: Rethinking professional development for early childhood teachers. In L. Couse & S. Recchia (Eds.), *Handbook of early childhood teacher education* (pp. 54–68). Routledge.

Woods, J. (2005). *Family-guided, routines-based intervention project*. Department of Communication Disorders, Florida State University.

Yoder, P., Llyod, B., & Symons, F. (2018). *Observational measurement of behavior* (2nd ed.). Brookes.

Zaslow, M., Tout, K., Halle, T., Whittaker, J. V., & Lavelle, B. (2010). *Toward the identification of features of effective professional development for early childhood educators* [Literature review]. Office of Planning, Evaluation and Policy Development, U.S. Department of Education. https://www2.ed.gov/rschstat/eval/professional-development/literature-review.pdf