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Rachel E. Schachter

Hope K. Gerde

Holly Hatton-Bowers

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Rachel E. Schachter,[1] Hope K. Gerde,[2] and
Holly Hatton–Bowers[1]

1 Department of Child, Youth and Family Studies, University of Nebraska–Lincoln,
Lincoln, NE 68522, USA

2 Human Development and Family Studies, Michigan State University, East
Lansing, MI 48824, USA

Corresponding author — Rachel E. Schachter, rschachter2@unl.edu

ORCID http://orcid.org/0000-0003-3951-858X R.E. Schachter

Abstract

Engaging teachers of young children in effective in-service professional development is a critical component of establishing high quality early childhood education. However, not all professional development offerings are effective in imparting new knowledge, enhancing teacher practice, or improving child outcomes, making it difficult for teachers and directors to select professional development that will benefit their centers. This paper critically reviews the research literature on professional development for early childhood education to identify what features of professional development make a difference for teacher interactions and children's learning and development. Guidance is provided for selecting professional development opportunities which meet the needs of children and teachers. Recommendations for how to create an ongoing professional development program within an early childhood center by creating a professional learning community are also made. Such an approach supports the center to become a place that values learning and continued education for all professionals.

Keywords: Professional development, Early childhood education, In-service training, Child outcomes

Introduction

Professional development (PD) for early childhood (EC) teachers has the capacity to improve outcomes for children (Henry and Pianta 2011; Zaslow and Martinez-Beck 2006). Given the range of background experiences of those working in the field of EC (Institute of Medicine and National Research Council 2012), PD is an especially important lever for enhancing the educational quality of EC programs. Not surprisingly, PD for EC teachers has been the focus of reforms in EC education worldwide (OECD 2005) and serves as an established indicator of quality in the profession of EC education. To support this mission, many countries around the world have established policies regarding PD for early childhood education (OECD 2012; US Department of Health and Human services 2018; Yuen 2011).

Unfortunately, beyond the required number of hours and designating the PD as focused on early education, generally these policies offer very little guidance regarding the types of PD in which teachers should participate. In fact, the development of PD and the design of PD policy are very different entities (e.g., Hardy 2012) which often do not align. The research on EC PD indicates that PD experiences are not equally effective at enhancing teacher knowledge, cultivating teacher pedagogy, or improving child outcomes (Piasta et al. 2017; Jackson et al. 2006; Zaslow et al. 2011). This lack of guidance poses a dilemma for those trying to select appropriate and beneficial PD offerings for center-based EC teachers.

In this paper, we use the literature on high-quality PD to provide concrete guidelines for center-based program directors and EC teachers regarding how to create a PD agenda for an EC program or an individual teacher—focusing on selecting quality PD content and formats. In addition, we provide suggestions for deepening PD for EC programs and teachers by both creating a culture of learning within EC programs and evaluating the effects of their PD efforts.

Common PD Offerings—Some Benefits and Limitations

Traditional PD in EC has been provided via one-off trainings that have been shown to have limited success in supporting effective changes in practice (Borko 2004; Garet et al. 2001; Neuman and Kamil 2010).

These types of trainings focus on knowledge building which often yield only short-term, limited change. The context in which the teacher provides care and the children with which the teacher works are essentially removed from this type of PD making it challenging for teachers and administrators to translate this type of learning into practice. Furthermore, these trainings often do not consider the background knowledge, experiences, and beliefs that teachers bring with them to professional learning experiences (e.g., Evans et al. 2004; Guskey 2002) and shape teachers' uptake of particular PD content. These trainings often only target teachers' content knowledge (Cox et al. 2015) when we know that there are multiple types of knowledge that work together to inform teaching (Schachter 2017; Schachter et al. 2016) and thus teachers may need more support in integrating this new knowledge within current knowledge, beliefs, and practices. Unfortunately, most PD offerings still maintain this model, primarily because onetime workshops carry very low cost, are easily attended during non-work hours, and can parse up content into areas that might be of interest to teachers. However, these types of trainings should be avoided as a *primary* method of PD because they are low-dosage models that do not provide opportunities to engage in the critical processes that promote teacher development. Furthermore, teachers report that these types of trainings typically do little to support changes in knowledge, practice, or beliefs (Horizon Research 2002) and, in fact, many report that trainings actually lead to the maintenance of old practices (Hill 2009). This could be because many teachers feel disenfranchised by this PD process. Thus, it is crucial to look for PD that provides educational experiences for teachers beyond one-day trainings.

Fortunately, alternative models hold more promise for supporting teachers' continuing education. University-level courses in EC education or child development are an effective option by engaging teachers in coursework which can result in positive changes in teacher practices (Breffni 2011; Dickinson and Caswell 2007; Hamre et al. 2012) and children's outcomes (Landry et al. 2009). These positive outcomes may result from the coursework offering teachers extended time to examine new content and reflect about the application of that content to practice. Further, several studies find that coursework plus individualized coaching centered around that coursework, results in greater change in teacher practice and child outcomes than coursework alone (Landry et al. 2009; Neuman and Cunningham 2009).

The use of coaching in EC PD has been growing rapidly (Schachter 2015) with many studies finding positive outcomes for teachers and children through the use of a variety of coaching formats that support teachers in implementing new knowledge into their practice (e.g., Bean et al. 2010; Sailors and Price 2015; Wasik et al. 2006; Wasik and Hindman 2011). Moreover, recent efforts have focused on the use of innovative technology to support professional learning (Moon et al. 2014; Powell et al. 2010). The use of web-based training may be particularly efficacious when application and self-reflection are part of the experience and learners are engaged in dialogic processes (Downer et al. 2009). These distance learning approaches may be especially appealing to practitioners who are geographically isolated from other quality educational resources. Furthermore, many of these online formats seek to integrate coursework (i.e., via learning modules) and/or coaching to support teacher learning.

Research examining these high-quality PD programs with evidence of effects described previously have identified that individual components of PD are important to their success. In **Table 1** we summarize the benefits and limitations of each of these common PD formats. As the emphasis on EC education continues to grow and policy measures focused on improving the quality of EC build (Connors 2016), even more options may become available for professional learning. Although we know that alternatives to the commonly offered, but ineffective one-off training are available, they remain difficult to find and select. Furthermore, we recognize that participating in PD can be a costly endeavor for EC programs and teachers. There are often fees associated with participating and travelling to attend PD offerings such as workshops and conferences For example, in order to participate in conferences the registration fee may be $325 (NAEYC 2018) or £415 (EECERA 2018) in addition to annual membership fees, transportation, lodging, and meals. This is on top of costs derived from leaving home for several days as well as costs for the EC program to cover the classroom while the teacher is attending the conference. Even virtual coursework delivered via distance technology offered as part of degree programs can be cost prohibitive. Whereas they can offer flexibility in when to take the course and do not require travel, online courses can be costly, with some programs charging $415 per credit hour (Great Plains IDEA 2018).

Table 1. Benefits and limitations of common early childhood professional development formats

Format	Benefits	Limitations
One-time workshop/training	Provides content concerning an identified gap for teachers Can generate an initial interest and awareness on a topic Preferred by teachers because it easily fits their schedules Meets learning expectations May show exemplars of new content in use Can be cost-effective Meets state and federal requirements for completing PD	Rarely results in improvements for teachers or children Does not provide the opportunity to practice and experiment with new skills and knowledge in the classroom Not intensive or ongoing Often delivered without an individualized approach of matching the PD to the teacher's needs
Coursework/course credit	Delivers content over an extended time Provides in-depth knowledge regarding content May show exemplars of new content in use May provide time to try out new ideas in the classroom May allow for reflection	Mixed evidence regarding results for children Does not provide feedback on use of new content in context Often delivered without an individualized approach of matching the PD to the teacher's needs
Coaching	Allows opportunities to see exemplars of new content in use in a teacher's specific classroom Provides a teacher with multiple and often repeated opportunities to be observed and receive individualized feedback on their teaching practices When delivered using a standardized process, can lead to positive changes in teacher practices and child outcomes Effective in generating self-reflection Effective in fostering positive changes in teacher practices and child outcomes	Requires more time investment on the part of the program and the teacher Can be costlier for a program which is often challenged by high rates of teacher turnover Teachers can feel hesitant and even resistant to coaching Need to have coaches who are well-trained in using an intensive, collaborative model which can be challenging for programs who are more geographically isolated Not all coaching is equally effective
Technology-mediated	Can be less disruptive of class time Can be used from a wider geographic area increasing the availability of PD opportunities Can ease implementation and challenges with scheduling Can be delivered with peers from different settings creating a peer learning environment Effective in fostering positive changes in teacher practices and child outcomes	Teachers need to be comfortable and adept in using technology Program may not have high speed internet, resulting in challenges in video viewing or meeting online There can be high initial costs to invest in the technology If engaging in live distance coaching over the web, parental/caregiver consent needed

There are strategies to use when choosing PD that can ensure high-quality PD experiences maximize professional learning. Recognizing that the available high-quality PD may be beyond the personnel and financial resources of many teachers and administrators, in the later section entitled, *Creating and Maintaining a Culture of Learning to Support PD,* we describe how to select PD to create a community of learning that will allow programs to leverage the resources they have and establish high-quality PD within their own programs. First, however, it is essential to select high-quality PD. To do so successfully, it is important to consider two key components of PD—the *content* and the *format*. We propose using the following guidelines (or checklist) for making PD selections:

1. Select a PD *Content* that:
   a. Follows the adult learners' interests and goals by targeting teachers' identified gaps in knowledge and skills.
   b. Focuses on developing teaching practices that support developmental goals for children.

2. Select a PD *Format* that:
   a. Disseminates information to develop content knowledge *and* provide opportunities to practice new skills in classroom contexts.
   b. Explains why practices are considered high quality.
   c. Concentrates on one content area for an extended time (at least 20 h over time).
   d. Provides opportunities to observe high quality practice.
   e. Includes chances for teachers to receive individualized feedback.
   f. Facilitates teachers' self-reflection.

Next, we offer elaboration and research support for each guideline listed above and ideas for ensuring that the PD selected meets these guidelines. **Table 2** provides a real-world example of a teacher and director collaborating to select PD using these guidelines.

Identifying PD Content

The first critical decision in selecting PD is to identify what content teachers will learn. Effective EC teachers need deep knowledge of child

Table 2. Real life example of how to use the guidelines for selecting professional development

Lidia and the online webinars	Connection to guidelines
Lidia, a toddler teacher, was interested to learn about supporting children's early mathematics. She had recently read a *Zero to Three* article and found the content helpful; she did not think it was possible to teach toddlers math. She reached out to her director to request PD on this topic. The director shared about an online learning opportunity on early math being offered through the local University's Extension program. Lidia attended the webinar, *Blocks Building Math Talk in Early Childhood Settings*. She found the 1-h very helpful as she felt she had increased her knowledge on key concepts, such as increasing mathematical talk and using blocks to promote STEM play.	The director helped connect Lidia to a topic that was a need and interest.
After the webinar ended, participants were invited to put what they learned into practice, document their learning and work with an Extension Educator who would provide them with feedback. Lidia requested to participate in this extended learning experience for which she would receive continuing education credits. The director agreed. Lidia worked with the Extension Educator who asked her to practice what she learned from the webinar and videotape herself using mathematical talk with her toddlers. The Extension Educator watched the video, provided feedback and asked what additional questions Lidia had. Lidia said she did not feel very confident facilitating children's learning in this way. The Extension Educator encouraged her to try it again and gave her some specific ways she could further expand the activities to develop toddler's math learning. Lidia practiced this activity again and used cards to help remind her of particular statements and strategies to use. The Extension Educator met with Lidia again and provided her with feedback on her practice and asked her how she could expand math talk in other areas of children's learning in addition to block play. After these two demonstrations, Lidia completed a reflective report stating why mathematical talk is important for children's development, strategies to facilitate children's early learning in math, and her future intentions for facilitating children's math learning in the toddler classroom.	Lidia extended her learning by engaging in more in-depth and ongoing PD about the topic. She was able to see more examples of practice, hone in on what was specifically difficult for her, use video recordings to reflect on practice, and receive feedback on practice. Also, she self-reflected on the topic and her practice .
After this 1 month PD experience, the director facilitated a culture of learning by having Lidia share what she learned at a staff meeting. She provided information about why early math learning is important, strategies to facilitate this learning and her future ideas for facilitating math learning. The director invited Lidia to mentor other teachers in doing the same process, serving as a peer coach. Lidia agreed and supported 5 teachers in the program to promote math in their classrooms. The online synchronous learning extended Lidia's learning which was initiated by her own interests for PD. She then combined this online learning with mentoring wherein she demonstrated her learning, received feedback, engaged in reflective conversations, and then was asked to teach her peers.	They developed a culture of learning by sharing information and learning across the program.

development across domains and a collection of teaching practices to support children, both typically developing and with special needs, and their families in culturally relevant ways (Copple and Bredekamp 2009). Thus, it can be overwhelming to identify where to begin in terms of content selection. As an important first step it is beneficial to select content that addresses the goals of teachers and goals for children.

Select Content that Addresses the Goals of Teachers

The content focus of the PD should be relevant and interesting to teachers while also incorporating new information. First and foremost, teachers are adult learners; they are motivated to learn when they are working on a self-identified problem (Mezirow 1997; Vella 2008). Thus, teachers are more likely to engage with PD or use a new practice when they have identified it as a particular goal of their own teaching (Peterson 2012) or as a gap in the curriculum they use (Cunningham et al. 2009; Lieber et al. 2010). Many EC teachers have reported feeling insecure about or have limited skills in teaching specific topics such as science (Gerde et al. 2018; Greenfield et al. 2009) or phonological awareness (O'Leary et al. 2010) and therefore, may be more receptive to PD that targets instruction in these domains. In addition, there is evidence that teachers typically do not continue practices at the end of a PD when they do not see the content or practices as beneficial (Cunningham et al. 2009; Lieber et al. 2010), reiterating the importance of content relevance to the individual teacher. Therefore, when selecting PD content first talk with teachers about topics on which they want to learn more about or areas they want to improve and help identify PD content that aligns with these individual goals.

Relatedly, the regularly updating/changing state-level or programmatic standards may naturally identify necessary targets of PD. For example, when updated or new math standards required by the state are published, educators can seek out opportunities for PD experiences that both explain more about the standards and children's mathematical learning as well as provide specific instructional strategies for teachers to implement in the classroom. Encouraging teachers to identify where they want/need to improve and supporting them to learn more in that area can have long-term benefits on instruction and children's learning.

Select Content That Addresses Goals for Children

The content focus of the PD should not only be relevant and interesting to teachers, it should also support teachers in meeting the learning and development goals for the children. Research suggests that when PD is based on the goals regarding children's learning, it is more successful (e.g., Clements et al. 2011; Little 2006). Directors and teachers know the children in their program and thus, can identify the learning needs of those particular children. For example, if the program includes many children with social-emotional challenges, find PD that will help teachers support these children. If the children are interested in nature and the outdoors but teachers feel underprepared in integrating learning content into outdoor experiences, PD that helps teachers develop their science knowledge and skills for integrating curriculum would be meaningful. PD can be used to help teachers better understand their children's abilities and provide training on how to use that information to plan instruction (Clements et al. 2011). Finally, many programs are now required to use child-level assessments (Connors 2016) and these can provide critical insight into areas to target through PD and deepen the knowledge and understanding of the PD content. Patterns in children's performance can help indicate areas in need of PD support. Regardless of the content of the PD, effective PD ensures that teachers understand how the content connects to their work in the classroom and how it will ultimately benefit their children (Hammerness et al. 2007). This connection can be achieved through a variety of PD formats.

Deciding on the PD Format

There are many important considerations when selecting the format of PD. The literature regarding both adult learning and intervention identifies several essential components or "active ingredients" for effective PD. In addition to garnering new knowledge, adult learners need to engage in: critical reflection, planning to use new ideas, building new skills tied to knowledge, developing confidence, and actively interacting with the content (Mezirow 1997; Vella 2008). Next, we describe five criteria that are important when considering PD formats that help support these learning goals. Later sections will describe how to create these opportunities within individual EC programs.

Ongoing and Intensive Experiences

In practice, how much PD, or the dosage and the duration, are important factors in selecting PD opportunities. PD is costly in terms of time and money and it is important to ensure that time spent in PD is worthwhile. Continuous PD is identified as an approach to improving the quality of EC around the world (Jensen and Iannone 2018). As in other countries (Jensen and Iannone 2018; OECD 2012), both state and federal PD policies in the US, for example, specify a required number of hours to be completed annually. These requirements vary widely (e.g., 3–30); however, most US state requirements fall within a narrow range between 10 and 15 h (e.g., Maryland State Board of Education 2012; State of Alabama Department of Human Resources 2009; Washington State Department of Early Learning 2011). Unfortunately, research on PD dosage designed to align with US state standards indicates that these requirements are insufficient (Gerde et al. 2014; Wayne et al. 2008). For example, a review of PD programs in elementary schools found PD lasting 14 h or fewer to be ineffective for marking change in teacher practice or child outcomes (Yoon et al. 2007), whereas PD encompassing 50 h or more influenced change in teacher practice and/or child outcomes (Long 2011; Yoon et al. 2007). Further work has found that twenty hours or more of PD can be effective when the training dosage is spread across a semester or more, allowing teachers time to really practice strategies learned in training in their own classrooms (Desimone 2009). Although there is limited research on the dosage of PD needed for EC teachers (see Weber-Mayrer et al. 2018), it can be argued that these recommendations are applicable to EC. Thus, it is necessary to engage in PD that is intensive, continuous, and provides enough time for teachers to successfully learn the new content and have time to practice the skills and behaviors learned in the early childhood setting.

Opportunities to Observe New Content in Use

Quality PD offers teachers multiple opportunities to observe high quality practice and time to reflect the new content of the PD while also being informed why and what contributes to the practices being high quality (Landry et al. 2009; Pianta et al. 2008; Powell et al. 2010, Wasik et al. 2006; Wasik and Hindman 2011). These opportunities might take on

many modalities depending on the goals of the individual teacher and context. Coaches, for example, may model practices for teachers in their classrooms or teachers may view video exemplars; both formats illustrate the target teaching strategies for educators to implement. Further, teachers should be informed about how these observed practices support children's development and why they are considered high quality (Wasik and Hindman 2011). This strategy articulates the relevance of each practice which may reinforce teachers' use of the new practice, as teachers are more likely to implement practices which align with their beliefs of quality practice (Lieber et al. 2010). Therefore, when modeling new practices, it is important to provide explanations to highlight the key behaviors such as through the use of video exemplars with voiceovers drawing viewer attention to the target practice (Powell et al. 2010). These videos can be useful ways for reinforcing key concepts taught in in-person trainings; particularly when the videos are relevant and consist of real-life scenarios and examples (Douglas et al. 2017; Gerde et al. 2014).

Opportunities to Practice New Content with Structured Feedback

After observing target practices in use and learning about their value, teachers benefit from opportunities to practice what they have learned in real classrooms and receive guidance in developing these new skills (Zaslow et al. 2011). Effective PD provides opportunities to practice new skills both at the training and when teachers return to their program. Establishing time for continued practice and modification when teachers return from PD experiences offers teachers time to think about practice and consider what they might do differently to meet the goals of the children in their own classrooms. The format of the PD should allow for frequent and recurrent opportunities to receive individualized feedback on practice in classrooms (Wasik et al. 2006; Wayne et al. 2008). Teachers report that they are interested in PD that provides individualized feedback on their own teaching (Wayne et al. 2008), thus, this type of PD can be especially successful in promoting change in practice. Feedback should be targeted and specific and is most effective when it is based on a set of standards, assessment indicators, or a framework tied to the new content (e.g., Casey and McWilliam 2011; Hemmeter et al. 2011).

Opportunities for Self–Reflection

PD formats should engage teachers in self-reflection on multiple occasions as they hone their new skills; recent work has found that involving teachers in evaluating their own practice helps to enhance their teaching (Schachter and Gerde in press). This process supports teachers to recognize quality practice and areas for enhancement, which they can then begin to translate to their own teaching (Moran 2002). Engaging in self-reflection and peer-reflection supports all teachers to think critically and intentionally about their pedagogy, a cornerstone of teacher education and development (Liston and Zeichner 1996). Thus, effective PD opportunities encourage teachers to think critically about the new content and efforts to integrate that content into practice.

Coaching

Coaching is an "ongoing, dynamic, and interactive practice wherein an expert practitioner models, supports, and encourages an adult to reflect on and subsequently improve one's practice" (Gupta and Daniels 2012, p. 206) and can take on many forms in EC education. In fact, peer coaching, in which each teacher coaches the other on a particular skill in which he/she excels, can be particularly rewarding. PDs that offer individualized coaching can meet the needs of teachers with varying educational and experiential backgrounds because they begin training at each individual teacher's current skill and move forward (Joyce and Showers 1980).

Effective coaching utilizes an intensive, collaborative model, which includes open dialog about the teacher's current practice and both the teacher's and coach's goals for enhancement around the new content. Importantly, coaching has the potential to incorporate many of the PD formats just described. PD with coaching can provide teachers multiple and repeated opportunities to be observed and receive individualized feedback on their own teaching practice (Artman-Meeker et al. 2015; Wasik et al. 2006; Wayne et al. 2008) and lead to improvements in children's development and learning (Pianta et al. 2017). Effective coaches document feedback in writing so teachers can review it multiple times and include ideas for how to execute new skills in the classroom and goals for the next coaching session; ideas and goals should be generated in collaboration with the teacher. Standardizing this process supports

both coaches and teachers to understand the expectations of the PD and to identify the next steps once current goals are met. As a caution, some coaching models do not always result in improved outcomes for practice and children (e.g., Piasta et al. 2017; Markussen-Brown et al. 2017), particularly when they do not engage in the approaches mentioned here. Thus, for coaching to achieve the potential identified in Table 1, it should include the components described here (Snyder et al. 2015).

Using Technology in Ways Appropriate for the Learners

Technology can provide an effective way of delivering PD when it utilizes strategies known to be successful for enhancing teachers' classroom practice. For example, the *My Teaching Partner* PD (Pianta et al. 2008) engaged teachers in viewing video exemplars, video recording their own practice, and reflecting on their practice with a consultant (coach) via video web-chat. The *Classroom Links to Early Literacy* PD (Powell et al. 2010) provided teachers with a web-based resource of video exemplars, pictures and informational texts about high quality practice. These remote service delivery systems were effective for improving teachers' literacy practices and children's literacy outcomes (Powell et al. 2010), as well as teachers' scores on a measure of quality teacher–child interactions (Pianta et al. 2008). As another example, early mental health consultation that incorporates the use of online modules and video-based feedback reflection using practice-based coaching strategies is effective in addressing preschool children's challenging behaviors in the preschool classroom (Downer et al. 2018).

Distance-learning methods are particularly promising for groups facing geographic barriers such as rural preschool programs (Gottschalk and Hatton-Bowers 2017) and Migrant or American Indian/Alaska Native Head Start. A promising approach in terms of EC teachers' acceptance and positive changes in perceived knowledge of EC practices are distance learning series, such as the University of Nebraska Extension, *Fit and Healthy Kids*, (https://food.unl.edu/fit-and-healthy-kids) and Penn State's Better Kid Care online modules that also include ideas for programs to coach practices after these modules are viewed. One valuable use of technology (e.g., smartphone, tablet, laptop) is for teachers to document their own or a peer's progress to demonstrate how new content is being integrated into practice (Schachter and Gerde in press).

Creating and Maintaining a Culture of Learning to Support PD

Although it is rare to find existing PD offerings that meet all of the criteria suggested above, savvy programs intentionally create a culture of learning by engaging teachers in professional learning communities—an effective approach to PD for educators (Hargreaves 2007)—in which educators are agents in their own learning and the learning of their co-workers (Clark 2019; Escamilla and Meier 2018; Hardy 2012). These learning teams, which have been established in EC programs around the world (e.g., He and Ho 2013; Jensen and Iannone 2018), create opportunities for teachers and administrators to work together to design a PD agenda that fits the goals of teachers and children and collaboratively put what they have learned into practice to promote better outcomes for children (Borko et al. 2010; Archibald et al. 2011). In addition, successful programs leverage their learning communities to generate PD opportunities that align with the high-quality PD practices outlined above. Establishing a culture of learning by both encouraging teachers to seek out PD opportunities reflecting meaningful content and effective formats and integrating learning and discussion of practice into regular program routines creates an environment where professional learning is valued and celebrated and is a promising direction for educational reform (Stoll et al. 2006).

In order to deepen learning that supports the improvement of teaching practices and child outcomes, PD must be supported at the organizational level and become part of teachers' everyday experiences (Louis and Lee 2012). Creating opportunities for teachers to come together to talk about their PD including new content, teaching challenges, and strategies for enhancing practice is key. These types of conversations can be integrated into regular staff meetings or in a meeting dedicated solely to discussions about assessing and improving practice (Schachter and Gerde in press). Importantly, PD should occur during work hours and be integrated into the work week to demonstrate the professional value of PD and to minimize any additional burden on professionals already working long hours for low wages (Friedman-Krauss et al. 2014; Phillips et al. 2016).

At the core of any PD for teachers—particularly in the professional learning community—is the development of trusting relationships that provide space to be vulnerable and encourage teachers to try new practices. Within effective professional learning communities, teachers are

consistently encouraged to be thoughtful and reflective about their practice in the context of supportive relationships which are collaborative, inclusive, learning-oriented, and growth focused (Stoll and Louis 2007). A culture of learning, which promotes teachers to practice new skills, is facilitated through positive and supportive social relationships which can be developed virtually (e.g., Downer et al. 2009). This support and respect can be fostered with the use of reflective questions that engender curiosity and problem solving which is likely to lead to positive changes in teacher practices (Knotek and Sandoval 2003). New ideas should be acknowledged and appreciated and when concerns are raised by teachers they should be supported and addressed. Note that in the context of PD, it is important to provide feedback that rewards attempts at new practices and is strengths-based rather than punitive (Downer et al. 2009).

Structured opportunities to discuss practice and translate ideas into practice contribute to developing a powerful professional learning community (Kuh 2012). Programs fostering professional learning communities have teachers who feel valued as professionals and motivated to improve their knowledge and instruction (Ackerman 2008; Gebbie et al. 2012; Yilmaz and McMullen 2010) leading to improved practice (Buysse et al. 2010).

Director as Facilitator

The director or principal of the program serves as the facilitator and champion of the learning community. Administrative leadership demonstrates the value the program places on continuing education and program excellence. It is imperative that the director understands the content of the PD and how it aligns with high-quality EC teacher practices. The director plays an important role in ensuring that systems and policies align with the PD to support teacher development and children's learning (Institute of Medicine and National Research Council 2015). Further, the director guides the community in selecting meaningful content and formats for appropriately supporting individual learning goals and the needs of children in their programs.

As a program, the learning community should discuss the goals of children and teachers as well as teachers' interests to inform the selection of a specific content to study (see Table 2). The content selected may apply to the entire program or to small-groups of teachers depending

on interest and goals. Directors can encourage and provide resources for teachers to engage in PD experiences that target this focus (e.g., conferences). Remember, not all resources and PD opportunities are of high-quality. Thus, it is critical to look for opportunities that promote practices which are evidence-based or research-based. Evidence-based means that there is considerable research demonstrating that use of the specific practices presented in the PD results in improved outcomes (Farley et al. 2018). Somewhat differently, research-based practice implies that what is being advocated for is aligned with research; however, there may not yet be data evaluating these specific practices for effectiveness. High-Quality content can also reflect theories regarding child development from important EC figures such as Vygotsky, Dewey, or Montessori and reference collectively important ideas such as Developmentally Appropriate Practice (Copple and Bredekamp 2009).

Directors and teachers must ensure that PD providers are experts who know both the content and have success in delivering this content in an effective way. PD providers should demonstrate deep knowledge of the content through expertise obtained via educational training (e.g., Master's degree, Ph.D., or EdM) or experience in the field (more than 5 years) both of which have been shown to have positive impacts on instructional practices (Gerde and Powell 2009; Schachter et al. 2016; Hindman and Wasik 2011). Similar criteria should be used when seeking out electronic resources. The authors of online content should demonstrate expertise and the content should be based on evidence and research. **Table 3** identifies several high-quality websites that programs may use in selecting PD opportunities.

When making decisions about PD providers, including online resources, it remains important to follow the goals of the teachers, children, and the program and ensure that the criteria for selecting high-quality PD mentioned earlier are addressed.

Integrating Multiple PD Formats to Create Quality

As quality PD experiences offer multiple opportunities to learn new material, observe effective teaching, practice new skills with children, and receive feedback on the skills, PD should include a combination of workshops, courses, webinars, reading articles, practicing new skills, observing other teachers in action, and discussion (see Table 2). In addition, by

creating regular time and space to discuss teacher learning and practice, programs can create quality PD environments without costly budgetary expenditures. For example, upon selecting the new topic of phonological awareness, the learning community might read an article or book chapter, available at the local library, online, or through a journal subscription or professional membership, that defines phonological awareness and offers a range of strategies for promoting this constellation of skills within the classroom. This is an excellent starting point and can serve as an initial introduction to new content or practices. Teachers may each select one of these strategies to practice independently in their classroom and then, discuss their success and challenges with the group at their next meeting.

Next, the learning community might view a freely available online website or webinar, such as the ones listed in **Table 3,** about phonological skill development, discuss these ideas, and try the strategies in their classrooms. Learning communities can leverage the strengths of their members by encouraging teachers to share about the successes they have in the classroom and demonstrate these approaches to one another. In addition, each teacher may serve as a peer-coach by observing another teacher implement a new strategy and providing feedback on what they observed to go well and suggesting recommendations for what to try next (Schachter and Gerde in press; Liston and Zeichner 1996). During this time one or more teachers might attend an in-person workshop or conference session about phonological awareness and, upon their return to the center, share with the group what they learned. The group will then discuss how the new information from the workshop can be integrated into what they have already learned about the topic. In their next session, teachers may provide documentation of growth in their own practice or children's skills and then select another phonological strategy to target. This combination of PD approaches and regular opportunities to discuss successes and challenges helps the learning community to create PD that aligns with high-quality criteria (e.g., Wasik and Hindman 2011; Zaslow et al. 2011) and promotes ongoing learning (Downer et al. 2009).

There are several other low-cost but essential PD approaches for professional learning communities. For example, effective directors can lead teachers in discussions of a new policy, standard, or curriculum unit to ensure everyone interprets the document in the same way and that all

Table 3. High-quality online resources to support professional development

Organization	Professional development offerings
Better kid care on demand distance	Provides online professional development, some modules offered in Spanish Where to access: https://extension.psu.edu/programs/betterkidcare/on-demand
edWeb	Provides suggested professional learning communities and 300 free webinars a year (live and on-demand). Can receive certificates of completion Where to access: https://home.edweb.net/professional-learning-communities-with-free-webinars/
The National Association for the Education of Young Children (NAEYC)	Provides online and in-person professional learning experiences for early childhood professionals such as educators and directors There is ready access to their professional development offerings in the United States and they have a Global Engagement department that can customize trainings for international audiences Where to access: https://www.naeyc.org/resources/pd
National Center on Early Childhood Development, Teaching, and Learning (NCECDTL)	Provides resources and professional development training for the infant, toddler and preschool programs with a focus on using data to improve practice Jointly administered by the Office of Head Start and the Office of Child Care Where to access: https://eclkc.ohs.acf.hhs.gov/ncecdtl
Professional learning international	Workshops offered worldwide as well as recorded podcasts Where to access: https://www.professionallearninginternational.com/workshops/
Zero to three—professional development and workforce innovations	Provides customized professional development and technical assistance delivered online and in person Where to access: https://www.zerotothree.org/resources/services/professional-development-and-workforce-innovations

teachers have effective strategies for implementing the ideas presented in these documents. These discussions often identify gaps in knowledge or skill and thus, may be a starting point for further investigation and PD opportunities. In addition, state-based educational institutions such as Universities or Ministries/Departments of Education might also offer low-cost PD opportunities to EC programs and teachers regarding quality practices, policy, and educational standards. These programs may include opportunities to participate in research which would provide a means for evaluating the effectiveness of PD approaches.

There is no need to rush teacher development. Allow teachers plenty of time to:

- Engage in a variety of PD activities,
- Talk with others about what they have learned,
- Try out strategies in the classroom,
- Receive feedback from peers and/or mentors on their new strategies, and
- Identify what else they need to learn.

This process may last 6 months to over a year depending on the content and PD experiences. Decide as a group when to move on to another topic. Although this may seem like a long time to dedicate to specific content, investing this time will allow teachers plenty of opportunities to engage with new ideas, receive feedback, and ensure that they have learned what they wanted to know as well as understand the implications for the classroom (Garet et al. 2001; Little 2006). Further, this will provide time to see how the PD is impacting teacher practice and children's learning and development.

Evaluating Growth from PD

It is critical to engage in ongoing evaluation of PD for multiple reasons. First, teachers can become disfranchised if the PD no longer meets their goals and needs which often results in poorer outcomes (Cunningham et al. 2009; Hill 2009; Lieber et al. 2010). Thus, evaluating PD opportunities is crucial in both making sure that teachers' goals are continuing to be met while also demonstrating growth in teachers' practice or children's learning and development. Identifying positive growth can be a motivating force for adult learners (Mezirow 1997; Vella 2008) and improve teachers' self-efficacy which has been linked to enhanced practice (Bandura 1997; Downer et al. 2018; Justice et al. 2008). Thus, it is important for teachers to be active participants in the evaluation of their own PD. Finally, by evaluating growth garnered through PD, teachers and programs can identify next steps for PD. That is, teachers' new knowledge or skill may lead to the identification of a new goal within that content area or an interest in a new topic.

There are several ways to gather data to examine improvement from teacher participation in PD; assessment approaches should focus on both teachers and children. Observing change in teacher practice is a great way to begin PD evaluation because this seems to be where PD has its initial impacts (e.g., Gerde et al. 2014; Neuman and Wright 2010). Depending on the PD focus, teachers can be observed over time to determine how practices are shifting during participation in PD. These observations can be conducted by peers, supervisors, or even oneself through use of video technology. It is important to identify specific behaviors to change and to observe these behaviors over time. For example, if a teacher's goal is to improve interactions with children, first identify specific behaviors to improve (e.g., being on the child's level, engaging in joint attention, following the child's interest, asking open-ended questions), identify when teachers engage in these behaviors, and then look for small changes in how teachers use these behaviors with children. The use of observational tools may be particularly powerful for understanding change. It is best to select a measure that directly aligns with the practices being targeted. For example, if teachers are targeting their support of children's social-emotional development, the Teaching Pyramid Observation Tool (Fox et al. 2014) provides a concrete measure focused on specific instructional strategies teachers can implement and provides an objective and evidence-based tool for looking at practice over time. Teachers may reflect on changes in their knowledge and comfort-levels either through ongoing conversations with their learning community members or through teacher journaling (Bayat 2010) as a complementary strategy for understanding change.

It is important to understand how PD is impacting children as well. Although this might be more difficult to measure, using documented observations, collecting child portfolios, or using assessments with built-in learning trajectories (such as *Teaching Strategies Gold;* Heroman et al. 2010) are successful ways to track changes over time. Teachers and programs can look for small changes related to the content of the PD. For example, if focusing on children's mathematical thinking, teachers might have documentation via pictures or anecdotal notes of increases in children engaging in math-related activities and talking more about math concepts in their play. In addition, teachers might have evidence of children moving forward on the developmental trajectory in their math skills.

Collecting data to understand growth related to PD is an important part of PD participation, however, it is an additional step that takes time, planning, and program-level support to be successfully implemented. Thus, it is critical that programs—led by the administration—put into place structures that can facilitate this process. Establishing a culture of learning (as described above) is one step toward recognizing such data as valuable for individual teachers and the program as a whole.

Conclusion

Engaging teachers in high quality PD is essential to maintaining and enhancing the quality of the EC profession worldwide. Not all PD offerings deliver content using processes known to improve teachers' classroom practice and child outcomes. Effective PD offerings are intensive and ongoing, delivered in ways that allow teachers to observe quality practice, enact these practices, receive feedback, and engage in self-reflection, and is matched to the goals of the teacher and focused on a content and set of skills known to improve children's outcomes. Programs must work as a team to seek out PD that employs these methods and offer teachers enough time and targeted feedback to develop new skills and/or adapt skills for use with the children in their own classroom. Supports at the program-level should celebrate and expand on what teachers learn at trainings to take full advantage of PD learning opportunities. Creating a professional learning community supports the program to become a place that values learning and continued education for all.

References

Ackerman, D. J. (2008). Continuity of care, professional community, and the policy context: Potential benefits for infant and toddler teachers' professional development. *Early Education and Development, 19,* 753–777.

Archibald, S., Coggshall, J. G., Croft, A., & Goe, L. (2011). High quality professional development for all teachers: Effectively allocating resources. National Comprehensive Center for teacher Quality. Retrieved from http://www.tqsource.org/publication/highqualityprofessionaldevelopment.pdf

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.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: W. H. Freeman.

Bayat, M. (2010). Use of dialogue journals and video-recording in early childhood teacher education. *Journal of Early Childhood Teacher Education, 31,* 159–172.

Bean, R. M., Draper, J. A., Hall, V., Vandermolen, J., & Zigmond, N. (2010). Coaches and coaching in Reading First schools: A reality check. *The Elementary School Journal, 111,* 87–114.

Borko, H. (2004). Professional development and teacher learning: Mapping the terrain. *American Educational Research Association, 33,* 3–15.

Borko, H., Jacobs, J., & Koellner, K. (2010). Contemporary approaches to teacher professional development. In P. Peterson, E. Baker, & B. McGaw (Eds.), *International encyclopedia of education* (Vol. 7, pp. 548–556). Oxford England: Elsevier.

Breffni, L. (2011). Impact of curriculum training on state-funded prekindergarten teachers' knowledge, beliefs, and practices. *Journal of Early Childhood Teacher Education, 32,* 176–193.

Buysse, V., Castro, D. C., & Peisner-Feinberg, E. (2010). Effects of a professional development program on classroom practices and outcomes for Latino dual language learners. *Early Childhood Research Quarterly, 25,* 194–206.

Casey, A. M., & McWilliam, R. A. (2011). The impact of checklist-based training on teachers' use of the zone defense schedule. *Journal of Applied Behavior Analysis, 44,* 397–401.

Clark, M. (2019). Edges and boundaries: Finding community and innovation as an early childhood educator. *Early Childhood Education Journal, 47,* 153–162. https://doi.org/10.1007/s10643-018-0904-z

Clements, D. H., Sarama, J., Spitler, M. E., Lange, A. A., & Worlfe, C. B. (2011). Mathematics learned by young children in an intervention based on learning trajectories: A large-scale cluster randomized trial. *Journal for Research in Mathematics Education, 42*(2), 127–166.

Connors, M. C. (2016). Creating cultures of learning: A theoretical model of effective early care and education policy. *Early Childhood Research Quarterly, 36,* 32–45. https://doi.org/10.1016/j.ecresq.2015.12.005

Copple, C., & Bredekamp, S. (2009). *Developmentally appropriate practice in early childhood programs serving children from birth through age 8*. Washington DC: NAEYC.

Cox, M. E., Hollingsworth, H., & Buysse, V. (2015). Exploring the professional development landscape: Summary from four states. *Early Childhood Research Quarterly, 32,* 116–126. https://doi.org/10.1016/j.ecresq.2015.03.002

Cunningham, A. E., Zibulsky, J., & Callahan, M. D. (2009). Starting small: Building preschool teacher knowledge that supports early literacy development. *Reading and Writing, 22,* 487–510.

Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher, 38*(3), 181–199.

Dickinson, D. K., & Caswell, L. (2007). Building support for language and early literacy in preschool classrooms through in-service professional development: Effects of the Literacy Environment Enrichment Program (LEEP). *Early Childhood Research Quarterly, 22,* 243–260.

Douglas, S. N., Nordquist, E., Kammes, R., & Gerde, H. (2017). Online parent communication training for young children with complex communication needs. *Infants and Young Children, 30,* 288–303.

Downer, J. T., Kraft-Sayre, M. E., & Pianta, R. C. (2009). Ongoing, web-mediated professional development focused on teacher-child interactions: Early childhood educators' usage rates and self-reported satisfaction. *Early Education & Development, 20,* 321–345. https://doi.org/10.1080/10409280802595425

Downer, J. T., Williford, A. P., Bulotsky-Shearer, R. J., Vitiello, V. E., Bouza, J., & Reilly, S. (2018). Using data-driven, video-based early childhood consultation with teachers to reduce children's challenging behaviors and improve engagement in preschool classrooms. *School Mental Health, 10,* 226–242.

Escamilla, I. M., & Meier, D. (2018). The promise of teacher inquiry and reflection: Early childhood teachers as change agents. *Studying Teacher Education, 14,* 3–21.

European Early Childhood Education Research Association. (2018). EECERA 28th annual conference. Retrieved from: http://www.eecera2018.org/conference-tickets

Evans, M. A., Fox, M., Cremaso, L., & McKinnon, L. (2004). Beginning reading: The views of parents and teachers of young children. *Journal of Educational Psychology, 96,* 130. https://doi.org/10.1037/0022-0663.96.1.130

Farley, K. S., Brock, M. E., & Winterbottom, C. (2018). Evidence-based practices: Providing Guidance for early childhood practitioners. *Journal of Research in Childhood Education, 32,* 1–13. https://doi.org/10.1090/02568543.2017.1387205

Fox, L., Hemmeter, L. P., & Snyder, P. (2014). *Teaching pyramid observation tool*. Baltimore, MD: Brookes Publishing.

Friedman-Krauss, A. H., Raver, C. C., Neuspiel, J. M., & Kinsel, J. (2014). Child behavior problems, teacher executive functions, and teacher stress in Head Start classrooms. *Early Education and Development, 25,* 681–702. https://doi.org/10.1080/10409289.2013.825190

Garet, M. S., Porter, A. S., Desimone, L., Birman, B. F., & Yoon, K. S. (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal, 38,* 915–945.

Gebbie, D. H., Ceglowksi, D., Taylor, L. K., & Miels, J. (2012). The role of teacher efficacy in strengthening classroom support for preschool children with disabilities who exhibit challenging behaviors. *Early Childhood Education Journal, 40,* 35–46.

Gerde, H. K., Duke, N. K., Moses, A. M., Spybrook, J., & Shedd, M. K. (2014). How much for whom? Lessons from an efficacy study of modest professional development for child care providers. *Early Education and Development, 25,* 421–441.

Gerde, H. K., Pierce, S. J., Lee, K. S., & Van Egeren, L. A. (2018). Early childhood educators' self-efficacy in science, math, and literacy instruction and science practice in the classroom. *Early Education and Development, 29,* 70–90. https://doi.org/10.1080/10409289.2017.1360127

Gerde, H. K., & Powell, D. R. (2009). Teacher education, book-reading practices, and children's language growth across one year of Head Start. *Early Education and Development, 20,* 211–237. https://doi.org/10.1080/10409280802595417

Gottschalk, C. & Hatton-Bowers, H. (2017, November). *Increasing culturally responsive practices among early childhood professionals through the use of real-time coaching and reflective practice*, poster presented at the 2017 NAEYC Annual Conference. Atlanta, Georgia.

Great Plains IDEA. (2018). *Early care & education for a mobile society*. Retrieved from: https://www.gpidea.org/program/early-care-and-education-in-a-mobile-society

Greenfield, D. B., Jirout, J., Dominguez, X., Greenberg, A., Maier, M., & Fuccillo, J. (2009). Science in the preschool classroom: A programmatic research agenda to improve science readiness. *Early Education and Development, 20,* 238–264.

Gupta, S. S., & Daniels, J. (2012). Coaching and professional development in early childhood classrooms: Current practices and recommendations for the future. *NHSA Dialog, 15,* 206–220.

Guskey, T. R. (2002). Professional development and teacher change. *Teachers and Teaching, 8,* 381–391. https://doi.org/10.1080/135406002100000512

Hammerness, K., Darling-Hammond, L., Bransford, J., Berliner, D., Cochran-Smith, M., McDonald, M., et al. (2007). How teachers learn and develop. In L. Darling-Hammond & J. Bransford (Eds.), *Preparing teachers for a changing world: What teachers should learn and be able to do* (pp. 258–289). Hoboken, NJ: Jossey-Bass.

Hamre, B. K., Pianta, R. C., Burchinal, M., Field, S., LoCasale-Crouch, J., Downer, J. T., et al. (2012). A course on effective teacher–child interactions: Effects on teacher beliefs, knowledge, and observed practice. *American Educational Research Journal, 49,* 88–123.

Hardy, I. (2012). *The politics of teacher professional development: Policy, research, and practice*. New York: Routledge.

Hargreaves, A. (2007). Teaching quality: A sociological analysis. *Journal of Curriculum Studies, 20*(3), 211–231.

He, P., & Ho, D. (2013). Rethinking Professional Development policy for early childhood education. *Australasian Journal of Early Childhood, 38,* 95–102.

Hemmeter, M. L., Snyder, P., Kinder, K., & Artman, K. (2011). Impact of performance feedback delivered via electronic mail on preschool teachers' use of effective praise. *Early Childhood Research Quarterly, 26,* 96–109.

Henry, A.E., & Pianta, R.C. (2011). Effective teacher-child interactions in children's literacy: Evidence for scalable, aligned approaches to professional development. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of early literacy research* (Vol. 3, pp. 308–321).

Heroman, C., Tabors, P. O., Strategies, Teaching, & Teaching Strategies, Inc. (2010). *Teaching Strategies Gold: Birth through kindergarten assessment toolkit*. Washington, DC: Teaching Strategies.

Hill, H. C. (2009). Fixing teacher professional development. *Phi Delta Kappan, 90,* 470–476. https://doi.org/10.1177/003172170909000705

Hindman, A. H., & Wasik, B. A. (2011). Measuring teachers' knowledge about early language and literacy: Practical implications and considerations. *NHSA Dialog, 14,* 351–356. https://doi.org/10.1080/15240754.2011.618647

Horizon Research. (2002). *The 2000 National Survey of Science and Mathematics Education: Compendium of tables*. Chapel Hill, NC: Horizon Research.

Institute of Medicine and National Research Council. (2012). *The early childhood care and education workforce: Challenges and opportunities: A workshop report*. Washington, DC: The National Academies Press.

Institute of Medicine, & National Research Council. (2015). *Transforming the workforce for children birth through age 8: A unifying foundation*. Washington, DC: The National Academies Press.

Jackson, B., Larzelere, R., St. Clair, L., Corr, M., Fichter, C., & Egertson, H. (2006). The impact of HeadsUp! Reading on early childhood educators' literacy practices and preschool children's literacy skills. *Early Childhood Research Quarterly, 21,* 213–226.

Jensen, B., & Iannone, R. L. (2018). Innovative approaches to continuous professional development (CPD) in early childhood education and care (ECEC) in Europe: Findings from a comparative review. *European Journal of Education, 53,* 23–33. https://doi.org/10.1111/ejed.12253

Joyce, B., & Showers, B. (1980). Improving in-service training: The messages of research. *Educational Leadership, 37,* 379–385.

Justice, L. M., Mashburn, A. J., Hamre, B. K., & Pianta, R. C. (2008). Quality of language and literacy instruction in preschool classrooms serving at-risk pupils. *Early Childhood Research Quarterly, 23,* 51–68. https://doi.org/10.1016/j.ecresq.2007.09.004

Knotek, S. E., & Sandoval, J. (2003). Current research in consultee-centered consultation. *Journal of Educational and Psychological Consultation, 14,* 243–250.

Kuh, L. P. (2012). Promoting communities of practice and parallel process in early childhood settings. *Journal of Early Childhood Teacher Education, 33,* 19–37.

Landry, S. H., Anthony, J. L., Swank, P. R., & Monseque-Bailey, P. (2009). Effectiveness of comprehensive professional development for teachers of at-risk preschoolers. *Journal of Educational Psychology, 101,* 448–465.

Lieber, J., Butera, G., Hanson, M., Palmer, S., Horn, E., & Czaja, C. (2010). Sustainability of a preschool curriculum: What encourages continued use among teachers? *NHSA Dialog, 13,* 225–242.

Liston, D. P., & Zeichner, K. M. (1996). *Culture and teaching: Reflective teaching and the social conditions of schooling*. Mahwah, NJ: Lawrence Erlbaum.

Little, J. W. (2006). Professional community and professional development in the learning-centered school. *Best practices working paper*. Washington, DC: National Education Association.

Long, R. (2011). Professional development and education policy: Understanding the current disconnect. *Reading Today, 29*(3), 29–30.

Louis, K. S., & Lee, M. S. (2012). *Does school culture matter? Defining and measuring a strong school culture linked to student learning.* Presented at the annual meeting of the American Educational Research Association. Vancouver, British Columbia, Canada.

Markussen-Brown, J., Juhl, C. B., Piasta, S. B., Bleses, D., Højen, A., & Justice, L. M. (2017). The effects of language- and literacy- focused professional development on early educators and children: A best-evidence meta-analysis. *Early Childhood Research Quarterly, 38,* 97–115. https://doi.org/10.1016/j.ecresq.2016.07.002

Maryland State Board of Education. (2012). Subtitle 16 Child Care Centers. Retrieved from http://marylandpublicschools.org/NR/rdonlyres/FF4D42D2-46A0-44E6-9CEC-546C5641F978/31469/Sub16 CTRamend012312.pdf

Mezirow, J. (1997). Transformative learning: Theory to practice. *New Directions for Adult and Continuing Education, 74,* 5–12.

Moon, J., Passmore, C., Reiser, B. J., & Michaels, S. (2014). Beyond comparisons of online versus face-to-face PD: Commentary in response to Fishman et al., "Comparing the impact of online development in the context of curriculum implementation. *Journal of Teacher Education, 65,* 172–176. https://doi.org/10.1177/0022487113511497

Moran, M. J. (2002). Implications for the study and development of inquiry among early childhood preservice teachers: A report from one study. *Journal of Early Childhood Teacher Education, 23,* 39–44.

National Association for the Education of Young Children. (2018). 2018 Annual conference registration information. Retrieved from: https://www.naeyc.org/events/annual/2018/register

Neuman, S. B., & Cunningham, L. (2009). The impact of professional development and coaching on early language and literacy instructional practices. *American Educational Research Journal, 46,* 532–566.

Neuman, S. B., & Kamil, M. L. (2010). *Preparing teachers for the early childhood classroom: proven models and key principles*. Baltimore, MD: Paul H. Brookes.

Neuman, S. B., & Wright, T. S. (2010). Promoting language and literacy development for early childhood educators: A mixed-methods study of coursework and coaching. *The Elementary School Journal, 111,* 63–86.

O'Leary, P. M., Cockburn, M. K., Powell, D. R., & Diamond, K. E. (2010). Head Start teachers' views of phonological awareness and vocabulary knowledge instruction. *Early Childhood Education Journal, 38,* 187–195.

OECD. (2005). *Teachers matter. Attracting, developing and retaining effective teachers*. Paris: OECD.

OECD. (2012). *Research brief: Qualifications, education, and professional development matter*. Paris: OECD.

Peterson, S. M. (2012). Understanding early educators' readiness to change. *NHSA Dialog, 15,* 95–112.

Phillips, D., Austin, L. J., & Whitebrook, M. (2016). The early care and education workforce. *The Future of Children, 26,* 139–158.

Pianta, R. C., Hamre, B., Downer, J., Burchinal, M., Williford, A., LoCasale-Crouch, J., et al. (2017). Early childhood professional development: Coaching and coursework effects on indicators of children's school readiness. *Early Education and Development, 28,* 956–975. https://doi.org/10.1080/10409289.2017.1319783

Pianta, R. C., Mashburn, A. J., Downer, J. T., Hamre, B. K., & Justice, L. (2008). Effects of web-mediated professional development resources on teacher-child interactions in pre-kindergarten classrooms. *Early Childhood Research Quarterly, 23,* 431–451.

Piasta, S. B., Justice, L. M., O'Connell, A. A., Mauck, S. A., Weber- Mayrer, M., Schachter, R. E., et al. (2017). Effectiveness of large-scale, state-sponsored language and literacy professional development on early childhood educator outcomes. *Journal of Research on Educational Effectiveness, 10,* 354–378. https://doi.org/10.1080/19345747.2016.1270378

Powell, D. R., Diamond, K. E., Burchinal, M. R., & Koehler, M. J. (2010a). Effects of an early literacy professional development intervention on Head Start teachers and children. *Journal of Educational Psychology, 102,* 299–312.

Powell, D. R., Diamond, K. E., & Koehler, M. J. (2010b). Use of a case-based hypermedia resource in an early literacy coaching intervention with pre-kindergarten teachers. *Topics in Early Childhood Special Education, 29,* 239–249.

Sailors, M., & Price, L. (2015). Support for the Improvement of Practices through Intensive Coaching (SIPIC): A model of coaching for improving reading instruction and reading achievement. *Teaching and Teacher Education, 45,* 115–127.

Schachter, R. E. (2015). An analytic study of the professional development research in early childhood education. *Early Education and Development, 26,* 1057–1085. https://doi.org/10.1080/10409289.2015.1009335

Schachter, R. E. (2017). Early childhood teachers' pedagogical reasoning about how children learn during language and literacy instruction. *International Journal of Early Childhood, 49,* 95–111. https://doi.org/10.1007/s1315 8-017-0179-3

Schachter, R. E. & Gerde, H. K. (in press). Designing personalized professional development: How recording and reflecting on practice can improve teaching. *Young Children.*

Schachter, R. E., Spear, C. F., Piasta, S. B., Justice, L. M., & Logan, J. A. R. (2016). Early childhood educators' knowledge, beliefs, experiences, and children's language- and literacy-learning opportunities: What is the connection? *Early Childhood Research Quarterly, 36,* 281–294. https://doi.org/10.1016/j.ecresq.2016.01.008

Snyder, P. A., 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.

State of Alabama Department of Human Resources. (2009). *Minimum standards for day care centers and nighttime centers regulations and procedures.* Montgomery, AL: Author.

Stoll, L., Bolam, R., McMahon, A., Wallace, M., & Thomas, S. (2006). Professional learning communities: A review of the literature. *Journal of Educational Change, 7,* 221–258.

Stoll, L., & Louis, K. S. (2007). *Professional learning communities: Divergence, depth, and dilemmas.* London: Open University Press.

US Department of Health and Human Services. (2018). Foundation for staff development. Retrieved October 26, 2018 https://eclkc.ohs.acf.hhs.gov/professional-development/article/foundation-staff-development

Vella, J. (2008). *On teaching and learning: Putting the principles and practices of dialogue education into action.* Hoboken, NJ: Wiley.

Washington State Department of Early Learning. (2011). *Chapter 170-295 WAC: Minimum licensing requirements for child care centers.* Retrieved from http://apps.leg.wa.gov/WAC/default.aspx?cite=170-295&full=true#170-295-1060

Wasik, B. A., Bond, M. A., & Hindman, A. (2006). The effects of a language and literacy intervention on Head Start children and teachers. *Journal of Educational Psychology, 98,* 63–74.

Wasik, B. A., & Hindman, A. H. (2011). Identifying critical components of an effective preschool language and literacy coaching intervention. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of early literacy research* (Vol. 3, pp. 322–336). New York, NY: Guilford.

Wayne, A. J., Yoon, K. S., Zhu, P., Cronen, S., & Garet, M. S. (2008). Experimenting with teacher professional development: Motives and methods. *Educational Researcher, 37,* 469–479.

Weber-Mayrer, M. M., Piasta, S. B., Ottley, J. R., Justice, L. M., & O'Connell, A. (2018). Early childhood literacy coaching: An examination of coaching intensity and changes in educators' literacy knowledge and practice. *Journal of Teaching and Teacher Education, 76,* 14–24.

Yilmaz, A., & McMullen, M. B. (2010). A study of facilitating early literacy curriculum improvement in Head Start classrooms. *Education and Science, 35,* 169–183.

Yoon, K.S., Duncan, T., Lee, S. W.-Y., Scarloss, B., & Shapley, K. (2007). Reviewing the evidence on how teacher professional development affects student achievement (Issues & Answers Report, REL 2007–No. 033). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Southwest. Retrieved from http://ies.ed.gov/ncee/edlabs

Yuen, L. H. (2011). Early childhood teacher learning through a professional development school program in Hong Kong. *Journal of Early Childhood Teacher Education, 32,* 72–83.

Zaslow, M., & Martinez-Beck, I. (Eds.). (2006). *Critical issues in early childhood professional development*. Baltimore, MD: Brookes.

Zaslow, M., Tout, K., Halle, T., & Starr, R. (2011). Professional development for early childhood educators: Reviewing and revising conceptualizations. In S. B. Neuman & D. K. Dickinson (Eds.), *Handbook of early literacy research* (Vol. 3, pp. 425–434). New York, NY: Guilford.