

State-Sponsored Professional Development for Early Childhood Educators: Who Participates and Associated Implications for Future Offerings

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Professional development (PD) for early childhood educators has received increased attention as a means of bolstering young children's learning and development. Theory and research indicate that educators' characteristics play roles in both their own learning and that of children; however, little research has explored who participates in PD. This study provides an in-depth description of the backgrounds and qualifications, positions and settings, knowledge, and beliefs of educators participating in PD offerings. These educator characteristics have been identified as important factors in adult learning theory with implications for the design, implementation, and evaluation of adult learning. Descriptive analysis revealed considerable variability in many of these characteristics. Findings yield practical implications for the design of future large-scale PD efforts in terms of format, content, and marketing.

With large numbers of children attending early child care settings, provision of high-quality early childhood experiences has become a focus of national policies (Brennan, 2007). Many of these initiatives have focused on improving early childhood education (ECE) by increasing the pedagogical skills of the workforce providing services to young children (Bennett, 2006) with particular attention to in-service professional development (PD). PD is defined as activities that increase educator knowledge and advance effectiveness of instruction, with the goal of furthering educators' understandings of strategies for supporting children to meet challenging academic content and achievement standards (Neuman & Cunningham, 2009). The focus on PD has increased interest in research that links professional learning strategies to changes in educators' knowledge, beliefs, pedagogy, and child outcomes (Borko, 2004). Much of this research, however, has examined PD irrespective of educators' backgrounds. In particular, few studies have investigated the various educational backgrounds, beliefs, and knowledge that early childhood educators presumably bring to the adult learning experience (Rhodes & Huston, 2012). Knowing *who* participates in PD is

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a crucial first step towards designing effective programs, as such knowledge might afford better alignment between PD and adult learner needs and thus achieve better outcomes for educators and children.

Early Childhood Education and Its Workforce

ECE provides an important means for supporting children's early and continued learning. Myriad efforts have aimed at improving children's school readiness prior to formal school entry (e.g., state early learning standards; Darling-Hammond, 2009). These efforts are premised on research showing that children's experiences in ECE explain significant variance in key educational outcomes (Belsky, 2006) and may be particularly important for children from disadvantaged backgrounds (Snow, Burns, Griffin, & The Committee on the Prevention of Reading Difficulties in Young Children, 1998).

Diversity in the ECE workforce, particularly with respect to ECE educator qualifications (Rhodes & Huston, 2012), may lead to variability in the provision of high-quality ECE experiences. In general, early childhood educators tend to have less formal training than those in other educational sectors (Barnett, 2003; Maroto & Brandon, 2012; Rhodes & Huston, 2012). Additionally, because funding is typically discretionary, ECE positions tend to have high turnover and less stability. In the state of Ohio, for example, the early childhood budget was dramatically cut over the past 4 years from \$151.6 million to \$22.2 million. Challenges such as these create a constantly shifting ECE workforce with varying levels of knowledge and expertise (Moroto & Brandon, 2012), diverse work experiences, and a pluralism of beliefs and attitudes regarding young children's learning (Guo, Piasta, Justice, & Kaderavek, 2010; Hindman & Wasik, 2008).

Using Professional Development to Improve ECE

Given the workforce challenges listed above, one way to ensure that young children have access to high-quality experiences in ECE settings is to use PD to promote the quality of the workforce. There is accumulating evidence that ECE PD impacts educators and children (e.g., Grace et al., 2009; Lonigan, Farver, Phillips, & Clancy-Menchetti, 2011), with an increasing focus on large-scale efforts to provide such PD to early childhood educators. For example, Landry et al. (2006) investigated Texas's state initiative to enhance ECE language and literacy practices via PD. The PD model included Head Start educators participating in a 4-day interactive workshop, ongoing small group trainings, and 2 to 4 hours per month of in-class coaching. Comparison to a control condition showed that PD resulted in positive changes in educators' teaching orientations and significant gains in children's language and emergent literacy skills. Notably, the results were moderated by type of program, educator qualifications, and classroom characteristics. For example, some gains in children's language and literacy skills were greater when educators had higher levels of education or taught in full-day programs.

In addition, Pianta and colleagues conducted work on large-scale PD efforts serving low-income preschoolers in Virginia. Researchers compared two PD intervention models: (a) web-based PD combined with online consultation and (b) web-based PD only (Pianta, Mashburn, Downer, Hamre, & Justice, 2008). Results showed that educators who received PD plus consultation improved several aspects of classroom quality to a greater extent than controls. Again, effects were moderated by characteristics of the classroom and of educators.

Early Childhood Educators' Characteristics

Collectively, the available literature regarding large-scale PD efforts highlights that PD can be an effective means of supporting teaching and learning in ECE (Landry, Swank, Smith, Assel, & Gunnewig, 2006; Pianta et al., 2008) but suggests that the effectiveness may vary depending on educator and program characteristics (Jackson et al., 2006). These findings of differential effectiveness are consistent with adult learning theory, specifically Knowles's (1968) concept of andragogy. Andragogy posits that adult learning is dependent on a variety of factors, including adults' prior experiences, knowledge and understanding, and beliefs and perceptions (e.g., self-concept, openness to learn and change, motivation; Knowles, 1984). Notably, andragogy has informed additional adult learning theories, such as critical reflection (Brookfield, 1987), transformative learning (Mezirow, 2000), conscientization (Freire, 1970), and expertise (as cited in Hough et al., 2013), which acknowledge the importance of characteristics brought to the adult learning experience. Knowles's initial framework of andragogy was grounded in the notion that the content and material must be learner-centered. This framework of adult learning encourages those who design adult learning events (e.g., PD) to recognize the varying characteristics of learners and their experiences and integrate these into learning opportunities as much as possible (Merriam, 2001). Below, we briefly review how educators' backgrounds and qualifications, positions and settings, knowledge and beliefs may affect PD experiences and highlight the importance of acknowledging the characteristics that early childhood educators bring to the learning setting.

Educators' prior experiences are tied to their backgrounds and qualifications, including age and other demographics, level of education, and years of experience. One assumption underlying andragogy is that adult learners have accumulated a reservoir of life experiences that can be a rich resource for learning and an independent self-concept that directs their learning (Merriam, 2001). According to andragogy, such factors may influence educators' selection of PD experiences and the desired depth of coverage; mismatch of backgrounds and qualifications and PD experiences may result in less meaningful PD. For example, educators who are new to the field are generally less experienced, have broad content knowledge (Carter, 1990), and may be weaker in implementing effective strategies (Feiman-Nemser, 2003). As a result, novice educators may opt for PD geared toward basic standards and procedures for effective teaching whereas educators with more years of experience may seek PD that delves deeper into evolving standards and substantive knowledge of preferred content areas (Cunningham, Perry, Stanovich, & Stanovich, 2004). Gaining understanding of educators' backgrounds and experience levels will provide insight into the PD such that it is engaging, interactive, and meaningful for all participants.

The type of position(s) held (e.g., lead, assistant, itinerant educator) may influence educators' prior knowledge and experiences and thereby serve as a starting point for building skills and acquiring additional knowledge. Few ECE PD studies have included all of these educator roles in PD intervention. In fact, the majority of large-scale ECE PD studies, such as those reviewed previously, targeted lead educators in center-based preschool settings (Zaslow, Tout, Halle, Whittaker, & Lavelle, 2010). Very little research has been conducted with educators in home-based settings or differentiated those in public schools versus private centers. Included in the framework of adult learning theory is the acknowledgement of the various social roles which may relate to the adult learners' needs (Merriam, 2001). Early childhood educators working in center, school, and home-based settings may have varying roles related to their responsibilities in working with young children. Information about positions could provide insight for planning effective PD opportunities in which educators

with varying backgrounds acquire knowledge and strategies specific to their roles in working with young children as well as strategies to collaborate with each other for effective instruction.

Educators' knowledge and beliefs may also play roles in PD selection and effectiveness. Substantial prior knowledge (Hughes, 2005), feelings of efficacy and competence (Justice, Mashburn, Hamre, & Pianta, 2008), and openness to new ideas and practices (Vannatta, & Fordham, 2004) might influence the "uptake" of PD content and the extent to which PD effects change. This is supported by a key assumption of adult learner theory positing that adult learners are problem-centered and their interests lie in immediate application of new knowledge (Merriam, 2001). This assumption may require that facilitators of PD recognize the meaning perspectives (e.g., beliefs and attitudes) that early childhood educators bring with them to the learning setting (Mezirow, 1997) which both help and limit adults in the organization and sense-making of new information (Mezirow, 2012). Orientations and approaches to teaching and learning may be particularly important meaning perspectives to consider, given the links between such beliefs and educators' practices (e.g., Stipek & Byler, 1997). In ECE, for instance, emphasis on developmentally appropriate practice (Bredekamp & Copple, 1997) may lead many educators to take constructivist, child-centered approaches to their teaching (Stipek & Byler, 1997, 2004). Yet, accumulating evidence demonstrates the benefits of also embedding intentional, educator-managed lessons to address basic skills (Marcon, 2009). Educators who take a strong stance toward one orientation or approach may be less open to PD that emphasizes another orientation (e.g., Justice et al., 2008) unless facilitators of the adult learning experience address current assumptions and meaning perspectives (Mezirow, 1997) to challenge and 'shift' current knowledge and beliefs.

Goals of the Present Study

In sum, extant theory and research suggest that understanding *who* participates in PD opportunities has implications for educator learning and change. Moreover, understanding the characteristics of PD participants is a critical first step in aligning PD with principles of adult learning theory to enhance effectiveness, especially as the field moves to serving greater numbers of early childhood educators via large-scale state-implemented PD. Yet, none of the research on large-scale state PD efforts has unpacked the characteristics that educators in the wider early childhood workforce bring to the adult learning experience. To this end, the current study explored who participates in the PD offered by the state of Ohio, which, like other states such as Texas and Virginia, emphasizes large-scale PD as a means of improving ECE as a whole. Ohio, however, is unique in its provision of ECE PD in that it is open and free-of-cost to all early childhood educators across the state. Ultimately, this study has the potential to inform PD design in not only Ohio, but in other states throughout the country.

Ohio's ECE PD model includes a series of research-based modules delivered statewide by trained facilitators. The most long-standing and emphasized offering, Intentional Teaching–Language and Literacy (IT-LL), focuses on enhancing early childhood educators' provision of high-quality language and literacy experiences. To this end, the Ohio Department of Education (ODE) funds a 30-hour face-to-face module which includes 10 three-hour sessions to build knowledge and practice pertaining to early literacy learning environments, play, oral language, early reading, and early writing. The following four research questions were addressed: (a) What are the backgrounds and qualifications of early childhood educators who participate in Ohio's PD?; (b) What are the positions and settings

in which these educators work?; (c) What knowledge do these educators bring to the PD?; and (d) What beliefs do these educators hold when beginning the PD?

Method

Data for this study came from the Assessing Preschool Professionals' Learning Experiences (APPLE:Ohio) project, a large-scale evaluation of Ohio's ECE PD. The larger project involves a partnership between The Ohio State University, the Office of Early Learning and School Readiness at ODE, and the Early Childhood Quality Network. The present study included educator data from the first two of four cohorts, collected in the fall of 2010 and 2011. The project targeted the same population regularly served by Ohio's ECE PD.

Participants

Participants included 263 early childhood educators recruited from the larger pool of educators registered for the large-scale PD. Project participation was limited to educators who worked directly with preschool-aged children, with at least one eligible 4-year-old child, and who were willing to be randomly assigned to PD for the larger evaluation project. The vast majority of participating educators was female (98%) and identified themselves as non-Hispanic/Latino (99.5%). Most were White (80%); 19% were Black and 1% indicated "other" (Native American, Asian, Hawaiian, or Pacific Islander). The average age was 41 years (range: 23 to 73). Additional details concerning educators' backgrounds and qualifications were explored as an aim of this study and are reported in the Results section.

Procedure and Measures

As a part of the larger study, educators completed a series of questionnaires at the start of the PD to collect information regarding backgrounds, knowledge, and beliefs related to their work with young children. Note that although all participating educators were asked to complete all questionnaires, some educators missed or skipped individual questionnaire items, leading to the slight fluctuations in sample sizes across measures.

BACKGROUND AND QUALIFICATIONS

Questionnaire items collecting background and qualification data were largely adapted from the Early Childhood Longitudinal Study–Kindergarten (ECLS-K, 1999) Teacher Questionnaires. Educators reported level of education, area(s) of study, credentialing/licensure, certification, years of professional experience, and previously attended PD opportunities (see Table 1).

POSITIONS AND SETTINGS

Educators' positions and work settings were assessed via items designed specifically for the APPLE:Ohio study. Educators indicated their current position, work setting, accreditation, program type, and details of classroom enrollment (see Table 1).

KNOWLEDGE

Data were collected concerning three aspects of educators' knowledge: (a) general knowledge regarding ECE; (b) knowledge of ECE instructional practices, particularly those relevant to language and literacy instruction; and (c) knowledge of English spoken and

Table 1
Descriptive Statistics of Early Childhood Educators' Backgrounds and Qualifications

Characteristic	<i>n</i>	%	
Level of education			
No degree	30	13	
Associate's degree	54	23	
Bachelor's degree	77	33	
Graduate degree	75	32	
Education major			
Early childhood education	130	53	
Elementary education	25	10	
Special education	49	20	
English as a second language (ESL)	1	< 1	
Child development	19	8	
Other	63	26	
Certification to teach			
4-year-old children	165	71	
Special education	74	33	
Dual language learner	4	2	
No certification	64	25	
CDA	40	18	
PD attended			
Language and literacy	191	87	
Mathematics	129	60	
Science	98	47	
Social/emotional	148	72	
Behavior management	158	74	
Regulatory issues/skills	88	44	
Creativity/arts enrichment	90	44	
	<i>M</i>	<i>SD</i>	<i>Range</i>
Years of teaching experience	11.4	7.4	0–36

Note: With the exception of level of education, variables were not mutually exclusive. Due to this, as well as rounding, the percentages do not necessarily add up to 100.

written language structure. The latter two knowledge measures were included as the majority of Ohio's PD opportunities focus on promoting high-quality language and literacy experiences for young children (i.e., IT-LL), and language and literacy development is widely acknowledged and emphasized as an important component of ECE (National Governors Association Center for Best Practices & Council of Chief State School Officers, 2010). In addition, evidence indicates associations between educators' pedagogical and content knowledge regarding these domains and children's early learning (Neuman, 1999).

GENERAL KNOWLEDGE REGARDING ECE

Educators' general knowledge regarding ECE was assessed via 20 selected items from an online practice test for the Early Childhood Subject Matter Test from the Massachusetts

Tests for Educator License (1998) (<http://www.doe.mass.edu/mtel>). Responses were marked as correct/incorrect using the online scoring key. A total score was derived by summing the number of correct responses. Cronbach's alpha was .68.

KNOWLEDGE OF ECE INSTRUCTIONAL PRACTICES

Educators' indicated their knowledge of ECE instructional practices through the Knowledge Assessment of Early Language and Literacy Development Survey (Neuman & Cunningham, 2009). This survey consists of 70 multiple choice and true-false questions; addressing eight core language and literacy competencies and basic concepts in child development as indicated in the NAEYC standards. Responses were scored as correct or incorrect and summed to create a total score; Cronbach's alpha was .78.

KNOWLEDGE OF ENGLISH SPOKEN AND WRITTEN LANGUAGE STRUCTURE

Educators' knowledge of spoken and written language structure was measured via the Teacher Knowledge Assessment Survey (Cunningham et al., 2004), which consisted of 19 multiple choice and short-response items requiring educators to count the number of sounds, syllables, and phonemes in words, identify and manipulate individual phonemes, and identify phonetically regular and irregular words. Responses were scored as correct or incorrect; Cronbach's alpha was .77.

BELIEFS

For the present study, data concerning four beliefs central to educators' meaning perspectives (Mezirow, 1991) were collected: (a) self-efficacy, (b) openness to change, (c) adult versus child-centered perspectives, and (d) basic skills and constructivist approaches to ECE.

Self-efficacy. Educators' feeling of effectiveness supporting children's learning and development was measured using an abbreviated version (27 items) of the Teacher Self-Efficacy Scale (Bandura, 1997; Justice et al., 2008). Educators rated their ability to impact decision-making, teach effectively, discipline effectively, and create a positive school environment and impact children's language and literacy learning using a scale of 0 (*no feelings of efficacy*) to 4 (*very strong feelings of efficacy*). Previous validation work (Arthur, McCormick, & Bovaird, 2012) using all 27 items indicated that 18 items constituted three reliable and valid subscales: instructional self-efficacy (8 items), efficacy to create a positive school climate (5 items), and efficacy to promote language and literacy (5 items). Mean scores were calculated across each scale's items. Cronbach's alpha was .84, .74, and .94 respectively.

Openness to change. Educators' beliefs pertaining to openness to change were measured via items derived from two previously published scales (Neuman & Cunningham, 2009; Vannatta and Fordham, 2004). Educators responded to each item by indicating how strongly they agreed with nine questions on a scale ranging from 0 (*strongly disagree*) to 4 (*strongly agree*). Arthur et al. (2012) found that seven of these items created a valid and reliable composite openness to change score, calculated as the mean across items. Cronbach's alpha was .70.

Child-centered perspectives. Educators' general beliefs regarding adult- and child-centered perspectives were measured via the adapted Modernity Scale (Schaefer & Edgerton, 1985), which is a 16-item validated measure assessing the extent to which adults

hold adult-centered (e.g., “Children should always obey the teacher”) and child-centered (e.g., “Children learn best by doing things themselves rather than by listening to others”) perspectives on child development. Items are rated on a 5-point scale ranging from 0 (*strongly disagree*) to 4 (*strongly agree*) and averaged. Lower scores reflect more child-centered beliefs. Cronbach’s alpha was .78.

Beliefs regarding basic skills and constructivist approaches to learning. Educator’s perspectives on basic skills and constructivist approaches to learning were measured using the Appropriate Practices in Preschool Survey (Stipek & Byler, 1997). Educators indicated their level of agreement on a scale ranging from 0 (*strongly disagree*) to 4 (*strongly agree*) with 15 statements indicative of a basic skills approach (learning opportunities are more formal or structured), and 11 statements indicative of a constructivist approach (learning occurs as child and educator coconstruct knowledge). Item responses were averaged for each approach. Cronbach’s alpha was .81 for the basic skills score and .65 for the constructivist score.

Results

Backgrounds and Qualifications

Table 1 illustrates descriptive data concerning educators’ backgrounds and qualifications. Many educators enrolled in Ohio’s state-sponsored PD were highly educated and experienced; most (65%) held bachelor’s or graduate degrees and majored in early childhood education. Seventy-five percent held one or more teaching certifications; approximately one third held certifications in special education, which likely included the 20% of educators who specifically majored in special education. Few held certification or training relevant to dual language learners. Most participated in additional PD within the past year. Educators averaged 11 years of teaching experience although the range was large (0–36 years).

Positions and Settings

Results revealed considerable diversity in educators’ positions and program settings, as illustrated in Table 2. Although the majority were lead educators in their classrooms, approximately one quarter were colead or assistant educators. Programs were balanced across urban, suburban, and rural locations. Over half of the educators taught in programs that were state accredited, whereas only one quarter were NAEYC accredited. Programs were equally distributed between public schools and centers, with the vast majority receiving public funding. However, educators from home-based programs were underrepresented at only 1%. In terms of enrollment, many educators taught in half-day programs but a sizeable number served full-day or both full- and half-day populations. A high percentage of educators (71%) served children with individual education plans (IEPs) although only 24% taught in early childhood special education programs. Notably, 25% of educators taught dual language learners.

Knowledge

Educators’ in this study performed similarly across all three knowledge measures (see Table 3), averaging 65% to 70% correct. However, there was considerable variability in educators’ knowledge as indicated by the standard deviations and ranges. For both general knowledge of ECE and knowledge of English language structure, scores ranged from 16%

Table 2
Descriptive Statistics of Early Childhood Educators' Positions and Settings

Characteristic	<i>n</i>	%
Position		
Lead	155	72
Colead	32	15
Assistant	26	12
Itinerant	1	< 1
Center location		
Urban	78	38
Suburban	64	31
Rural	62	30
NAEYC accredited		
Yes	64	27
No	110	47
Don't know	62	26
State accredited		
Yes	125	53
No	97	40
Don't know	16	7
Program type		
Public school-based	103	48
Center-based	108	51
Home-based	3	1
Early childhood special education	59	24
Funding		
Private	16	7
Public	224	93
Enrollment		
Half day	134	56
Full day	77	32
Mixed	29	12
Settings with dual language learners	60	25
Settings with children with IEP	167	71

Note: Due to rounding, percentages for variables with mutually exclusive categories may not add up to 100.

to 100% correct. For knowledge of ECE instructional practices, scores ranged from 30% to 86% correct. Although most scores were close to the mean, educators exhibited the full spectrum of knowledge scores, and some demonstrated particularly low or high levels of knowledge.

Beliefs

On average, educators held moderate to strong feelings of self-efficacy and were open to instructional change (see [Table 3](#)). However, large standard deviations and ranges indicated considerable variability (e.g., very little to very strong feelings of efficacy). Similarly,

Table 3
Descriptive Statistics of Early Childhood Educators' Knowledge and Beliefs

Characteristic	<i>n</i>	Mean	<i>SD</i>	Range
Knowledge				
Early education general knowledge ^a	235	13.40	3.23	3–19
Knowledge of instructional practices ^b	241	45.44	6.36	21–60
Knowledge of English language structure ^c	236	13.31	3.40	3–19
Beliefs^d				
Self-efficacy				
Instructional	246	2.71	0.51	1.50–4.00
Positive school climate	246	3.05	0.53	1.00–4.00
Promote language and literacy	246	3.29	0.56	2.00–4.00
Openness to change	241	3.15	0.44	0.14–4.00
Adult- vs. child-centered perspectives	242	1.31	0.52	0.13–2.88
Basic skills vs. constructivist orientation				
Agreement with basic skills orientation	241	1.83	0.56	0.35–3.34
Agreement with constructivist orientation	241	2.97	0.42	1.91–4.00

^aPossible range for early education general knowledge is 0–19. ^bPossible range for knowledge of instructional practices is 0–70. ^cPossible range for knowledge of English language structure is 0–19.

^dPossible range for all four belief measures is 0–4.

openness to change also showed variability, albeit to a lesser extent. With respect to approaches to teaching and learning, on average, educators tended to agree with a child-centered approach. The average educator agreed with a constructivist orientation toward teaching and was neutral or slightly disagreed with a basic skills orientation. However, closer examination of scores again showed great variability. Some educators strongly agreed with child-centered approaches, whereas others strongly agreed with adult-centered approaches; the same was true for agreement with a basic skills approach in which educators use formal, structured learning opportunities. A more truncated range emerged in their agreement with a constructivist approach. Although some educators were neutral toward this approach, most indicated some level of agreement.

Discussion

Adult learning theory suggests that unless we take into account what the adult learners are bringing to the learning task, we will not be able to improve learning experiences for educators. For this reason, the goal of this study was to examine the characteristics of educators participating in state-sponsored PD with respect to background, positions, setting, knowledge, and beliefs. The results of this study contribute to a deeper understanding of the characteristics of the early childhood educator workforce, which are often overlooked when creating, offering, and researching professional learning for practicing educators. To the best of our knowledge, this examination represents the first attempt to characterize early childhood educators who opt to attend large-scale PD efforts and thus is an important first step in considering how PD may be improved based on adult learning theory, given that adult characteristics may determine the extent to which PD exerts intended impacts on learners (Knowles, 1968). Our findings serve as a resource for PD planning and

implementation, with several implications that may enhance future large-scale PD efforts in terms of (a) format and learning design, (b) content, and (c) marketing and recruitment.

Format and Learning Design

One major finding was the considerable variability in educators' backgrounds and qualifications, specifically educational degrees, specialization, and years of experience. This finding implies that PD developers may need to look beyond "one-size-fits-all" approaches in terms of format and learning design to best accommodate the varying levels of educators participating in large-scale PD. For example, given the variation in educators' qualifications, one adult learning theory, specifically expertise theory (Hough et al., 2013), would posit that PD would be more effective if offerings were targeted to the levels of expertise of participating educators. For example, the first segment of PD might be explicitly designed for those with less content expertise and experience and focus on content delivery and procedural knowledge with the expectation that educators will incorporate newly gained knowledge in a trial-and-error effort. In order to attend to higher levels of the stages of expertise theory in which educators would consider themselves proficient implementers of content, the PD may target problem-solving approaches specific to differentiated instruction informed by educators' experiences to build effectiveness in combining intuition and judgment in implementing intervention techniques (Hough et al., 2013). A subsequent segment of the PD could build on educators' experiences with the content scaffolding them to improve their identification of successes and challenges within their pedagogy. Developers might intentionally design differentiated PD to capitalize on educators' diverse experiences and expertise and consider offering PD in the form of coaching and critical reflection opportunities (Neuman & Cunningham, 2009).

Study groups and/or a peer coaching designs (Ball & Cohen, 1996) might also provide an alternative format that aligns with adult learning theory to acknowledge the differences in educators' experiences and qualifications. These formats allow educators with varying backgrounds to openly discuss their experiences and concerns in a peer learning setting. For example, given that novice educators are generally less experienced and may have low feelings of efficacy in the implementation of effective strategies (Feiman-Nemser, 2003), an educator with no degree yet many years of experience may provide insight regarding practices and content knowledge that are more effective, given significant practical experience. Conversely, a young educator with an advanced degree may scaffold or coach an assistant educator who does not have a formal degree on broad content knowledge related to a variety of topics (Carter, 1990). Although these examples are consistent with principles of adult learning theory, and may include the use of reflection to provide individualized modeling or feedback (Mezirow, 1991), additional research is necessary to determine which types of format may best serve the needs of the diverse ECE workforce.

Format may also be a key explanation as to why certain educators do not participate in large-scale PD. As indicated in our results, participants included few assistant or itinerant educators and only a small number of those providing home-based care, despite the existence of over 7,000 licensed home-based day care settings in the state of Ohio Department of Job and Family Services (2013). Perhaps educators serving in these capacities are unable to partake in PD due to the current format which requires educators to travel regularly to where the PD is held, often during the workday. Assistant, itinerant, and home-based educators may not be afforded release time to participate in such PD. In light of these findings, PD developers may wish to explore alternative formats such as flexible time offerings, job-embedded PD (e.g., coaching), distance learning, or various combinations of these.

Content

A second implication of our findings concerns the content of PD offerings. Our results showed that educators entered PD with widely varying sets of knowledge and beliefs. Assuming that early childhood educator's thoughts, decisions, and judgments are based on their subject matter knowledge and prior experiences as encompassed in their meaning perspectives (Mezirow, 1997), these findings call for assessment and acknowledgement of such differences prior to the implementation of PD. This information may be used to inform not only the design and content of future PD experiences but how to best facilitate these experiences given the variability, thus interrupting a "one-size-fits-all" approach to delivering PD and therefore addressing the individual needs of the adult learners attending.

Because educators in our study entered PD with widely varying knowledge levels, PD facilitators cannot assume that participants share the same knowledge base. Similar to recommendations for meeting children's individual learning needs (Tomlinson, 2001), PD facilitators may need to assess what participants know to ensure that adult learning needs are met. Understanding participants' existing knowledge is a critical consideration from the perspective of adult learning theory such that adult learners are more likely to become engaged in PD content when their interactions with facilitators explicitly acknowledge and build upon existing knowledge levels (Mezirow, 1991). Thus, PD facilitators might enhance their PD by collecting formal (e.g., pre-PD surveys) and informal (e.g., ongoing monitoring of understanding through the use of exit slips or other mechanisms) assessments to better gauge participants' initial and ongoing understandings of content.

Similarly, PD facilitators must be aware of educators' beliefs, including their feelings of efficacy, openness to change, and approaches and orientations to teaching and learning, given the influence of beliefs in changing behavior (Bandura, 1997; Guo et al., 2010). Beliefs concerning self-efficacy and openness to change are particularly important such that educators who report greater levels in these areas are more likely to incorporate new practices (Bandura, 1997; Vannatta & Fordham, 2004). Conversely, educators who enter PD unsure of their ability to enact new practices or whether these will impact children in their classrooms may need to be supported in such a way that they see how changes in practice can be meaningful to children's development. Further, it is particularly important to understand educators' approach (e.g., adult versus child) and orientation (e.g., constructivist versus basic) due to links with goals and decisions. For example, because child-centered beliefs and practices tend to be associated with different classroom goals than do basic skill-oriented beliefs and practices (Stipek & Byler, 1997), these may influence decisions for planning learning opportunities for young children and thereby affect the quality of care (Justice et al., 2008). Therefore, it is important to explore participants' current beliefs and use this information as a basis for approaching PD content. For example, in order to access educators' meaning perspectives, facilitators of PD may implement a learning needs and resource assessment to gather information regarding learners' experiences with the content (Vella, 2008). This includes collecting information regarding how educators' think about how knowledge is acquired, their perceptions of themselves as educators, and their use of language in a teaching/learning setting. Information gathered offers a valuable picture of the group and can help facilitators of PD design a basic introduction to dialogue education that serves the whole group and educators' initial self-reflection.

Educators may also benefit from adding specific content offerings. Focused content relevant to current issues and tied to practical application are key tenants of adult learning theory (Knowles, 1984; Mezirow, 1991). Our results showed that nearly 71% of the settings included children with IEPs, a finding that is consistent with national mandates for

children with disabilities to be included with typically developing peers (U.S. Department of Education, 2004). Yet, only a subset of educators reported training or certification specific to children with disabilities. As the number of children with disabilities in ECE settings continues to rise (U.S. Department of Education, National Center for Education Statistics, 2011), educators may benefit from PD specifically targeting evidence-based strategies for promoting knowledge and skills of children with disabilities as well as typically developing children. Further, our results exposed a disparity between the number of educators prepared to serve dual language learners and those with these children in their care (25%). Similar to the rest of the U.S., Ohio educators are facing a large increase (38% over the past 5 years and 199% over the past 10 years) in the number of dual language learners in classrooms (Ohio Department of Education, 2012). Future PD content should explicitly incorporate opportunities for teaching strategies that support dual language learners.

Marketing and Recruitment

A third implication concerns the marketing of and recruitment for large-scale PD. Our results indicate that certain groups are over- and underrepresented in the extent to which they participated. Most participants were highly educated, experienced, certified, and served as lead or colead educators in classrooms. Moreover, the vast majority were in school- or center-based settings receiving public funding. Interestingly, these findings indicate that, despite open enrollment and a no-cost policy, educators participating in Ohio's PD were largely similar to those who participated in targeted PD programs in Texas and Virginia (Landry, Anthony, Swank, & Monseque-Bailey, 2009; Mashburn, Downer, Hamre, Justice, & Pianta, 2010). The findings also suggest a large number of the ECE workforce, including those who are novices, serve as assistant educators, or work in home-based settings, are underserved. Arguably, such educators are particularly in need of PD opportunities, given lower minimum required qualifications and potential for serving large numbers of young children. Greater efforts may be necessary to ensure that such educators are not only aware of available PD opportunities but also the relevance of PD for enhancing their professional practice.

It is also notable that the educators participating in Ohio's PD were not particularly diverse with respect to gender, race, and ethnicity, and could be similarly nondiverse in other, nonmeasured demographic attributes, such as languages spoken and socioeconomic status. This does not appear to be entirely specific to the Ohio early childhood educator workforce, however, as the demographic characteristics of our sample are similar to those described in national reports (e.g., LoCasale-Crouch et al., 2007; Saluja, Early, & Clifford, 2002). The lack of diversity in our sample corroborate these earlier findings and perhaps suggest that the composition of the early childhood workforce may not have changed much over the past 14 years, thus raising the issue that the workforce may not be well matched with the racial, ethnic, and other types of diversity represented by the children attending these settings (Saluja et al., 2002).

Limitations, Future Directions, and Conclusion

The current study aimed to characterize educators who elected to participate in large-scale PD, particularly in light of theory and research suggesting that such characteristics are important when considering PD effectiveness. As such, the study was purely descriptive in nature. The implications are intended to foster deeper consideration of format, content, and marketing and recruitment for ECE PD especially as these relate to the tenants of adult

learning theory. We acknowledge that the majority of these implications, although based in theory, require additional research to determine causal associations with PD effectiveness. We also recognize that further research would need to be completed in order to generalize to a more diverse sample of educators. In addition, understanding what educators want with regard to PD is an important and interesting factor that was not examined in this study; however, this is an avenue for future research.

Future research might supplement these results by measuring additional characteristics suggested by adult learning theory as influencing the learning experience (e.g., motivation to learn; Knowles, Holton, & Swanson, 1998) and attempting to capture *why* particular educators elect to participate. Moreover, future research should further examine relations among these characteristics, PD opportunities, and educator learning, as is planned as a part of the larger longitudinal project that provided data for the current study. Finally, the need for ECE PD efforts to account for a vastly diverse workforce applies to all entities that implement large-scale PD. We see this study as only the first of many steps aimed at improving scaled-up PD efforts. By highlighting the varying characteristics of educators participating in state-sponsored PD, we raise the important issue that investments in such PD may not be realized with one-size-fits-all approaches that do not attend to the experiences and meaning perspectives that educators bring to such opportunities. We hope the current findings stimulate PD efforts and related research to best support all early childhood educators, thereby affording increased quality and educational opportunities for the myriad of young children in their care.

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