

The Role of Professional Development in Improving Quality and Supporting Child Outcomes in Early Education and Care

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Abstract

A skilled workforce that understands the needs of children and can deliver high quality curricula to children with diverse needs, is required in order to realise the wide-ranging benefits that could follow from public investment in ECEC provision (such as in-service Professional Development (PD)). It is well established in the literature that high quality ECEC is important for children's outcomes, and that variations in quality can be explained, to a large extent, by variations in educator pedagogy and practice. We argue for a better understanding of *how* ECEC educators and services can achieve (and be supported to optimise) children's development and learning outcomes. This paper argues for more rigorous PD designs, considered *evidence-based* content and delivery that are embedded within a rich evidence-base of practice, and that focus on educator effectiveness, practice change, and also on the benefits to children's learning and development. The paper draws upon effective PD literature and describes lessons learnt, focussing on the 'who', 'what' and 'how' of evaluation of effective in-service PD design and delivery.

Keywords: professional development, child outcomes, early education, quality

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Introduction

A growing body of evidence recognises the critical role of the educator and the integral role of professional development (PD) in enhancing quality within early childhood education and care (ECEC) (Cordingley et al., 2015; Egert, Fukkink, & Eckhardt, 2018; Fukkink & Lont, 2007; Jensen & Iannone, 2018; Zaslow, Tout, Halle, Whittaker, & Lavelle, 2010). Recent research suggests that initial educator and teacher preparation alone do not reliably ensure that new ECEC educators have the skills, knowledge and dispositions necessary to enhance young children's outcomes, that is, their social, emotional and cognitive development (Egert et al., 2018; Pianta, Barnett, Burchinal, & Thornburg, 2009; Siraj & Kingston, 2015). As a result, in-service PD is increasingly being employed to augment initial educator understandings and improve the quality of pedagogy and practice within ECEC. However, few PDs are being evaluated sufficiently and less is known about their effectiveness (Egert et al., 2018; Siraj, Kingston, et al., 2017). So, while there is a general consensus that PD has the potential to 'lift' educator practice, engagement in PD alone does not guarantee better educator effectiveness or enhancements in child outcomes (Organisation for Economic Co-operation and Development [OECD], 2012).

The elements of quality ECEC – in terms of both the *structure* and *process* – are reasonably well understood and can be measured using reliable, valid, and internationally recognised quality rating scales (see Siraj & Kingston, 2015). The importance of the role of the educator and their skills, knowledge and dispositions is increasingly being recognised and described: effective pedagogues engage in high quality interactions with children, they are purposeful, have specific curriculum knowledge, a wide ranging knowledge about how young children learn and develop, provide individualized care and instruction, are responsive and playful and reflective practitioners (Cooke & Lawton, 2008; Egert et al., 2018; Siraj, Kingston, et al., 2017). However, there is relatively impoverished evidence or adequate experimental rigour showing *how* ECEC environments and pedagogy can be modified to bring about sufficient quality improvement that yields demonstrable positive impacts for child outcomes (King, 2014; Zaslow et al., 2010). Specifically, questions persist in the PD literature concerning which approaches are particularly effective (e.g., coaching vs group based; online vs face-to-face; continuous programs vs one-off delivery),

for whom (e.g., parent, educator and/or child), and for achieving which outcomes (e.g., adult-child relationships, improved language and literacy, self-regulation) (Egert et al., 2018; Schachter, 2015; Sheridan, Edwards, Marvin, & Knoche, 2009). Continued, widespread focus on PD implementation within the ECEC context as a key mechanism to improve outcomes for children necessitates answers to these questions.

Focus of This Paper

Desimone (2011) suggests that three aspects are necessary to ensure PD does what it is intended to do; that is, increase the educators' knowledge and practice in ways that *enhance children's achievements and well-being*. This includes (i) the need for a clear definition of what PD is; (ii) a conceptual framework outlining the process and desired outcomes, so the efficacy of the PD for achieving these outcomes can be evaluated; and (iii) an agreement on the core features and elements of effective practice. Desimone also notes the importance of ensuring that PD is evaluated, and that this evaluation is robust and mirrors the conceptual framework (i.e., evaluates not only achievement of the PD's aims, but how these map against features of effective practice as indicated by research evidence).

In this paper, PD refers to a range of experiences which promote the education, training, and development opportunities for those who already work in ECEC. Given this definition, PD applies to a range of activities which attempt to increase the knowledge, skills, and/or attitudes of ECEC educators working with young children and their families/carers. Below conceptual frameworks outlining current thoughts on the process of learning and desired outcomes in PD are considered. However, the main focus of this paper is the examination of current literature on effective PD, especially in relation to ECEC as opposed to only schools' research (where there is more literature), to consider lessons learnt regarding the design, delivery and evaluation of PD within the ECEC sector. New understandings from studies delivering successful PD, where the PD impacted positively on educators' skills, knowledge and attitudes, and – in studies where children's learning and development was measured – on children's outcomes such as their social, emotional and cognitive development (e.g., King, 2014; Schachter, 2015; Siraj et al., 2018) are discussed in relation to *how* PD might be designed and implemented to sustainably improve educator practices

and child outcomes.

Professional Development and the Process of Change

Dunst (2015) postulated that PD should be evidence-based, that its effects may occur at the family- or the child-level, and that attitudes and beliefs towards new approaches introduced by the PD will change following educators' practice changes. He suggests five related steps: (i) evidence-based in-service PD practices lead to (ii) changes in early childhood practitioner knowledge and skills; which lead to (iii) educator adoption and use of evidence-based intervention practices; which lead to (iv) changes and improvements in child and family outcomes; which result in (v) changes in educator attitudes and beliefs. As Bandura (1997) suggested, changes in attitudes and beliefs are contingent upon evidence of change in desired outcomes. While these processes are neat and linear, they do not reflect the inter-relationships between changes in knowledge and skill, adoption of intervention practices, and attitudes and beliefs. For some educators, for example, changes in attitudes and beliefs may be necessary before they adopt new pedagogical approaches.

Simple stage-like models are useful for conceptualising the basic processes by which educators are likely to learn new skills, concepts and abilities, and adopt new approaches and attitudes (Sheridan et al., 2009). Stage-like models can be further enhanced by considering the contextual influences on the individual and the complex interrelationships which occur between the systems in which they operate (e.g., their existing knowledge, understandings and beliefs, relationships with colleagues, children and parents within their settings, existing legislation, policy frameworks and systems of accountability). PD frameworks should acknowledge the interrelated nature of the systems in which the educators work (Bronfenbrenner & Morris, 2006), as well as considering the content, process and support for affect known to be associated with effective PD (see Siraj, Kingston, et al., 2017).

Indeed, it seems likely that effective PD, like effective practice in ECEC, is part of a complex system of inter-relationships at a number of different levels: the educator(s), the classroom, the centre/service, and the social and political context (see Kyriakides, Creemers, & Antoniou, 2009; Timperley, Wilson, Barrar, & Fung, 2007). Effectiveness is 'contextual'

and responsive to supports embedded within the wider community as well as the eccentricities of a country's ECEC system (Jensen & Iannone, 2018; Yoshikawa et al., 2015). In practice, for PD to be effective, the content needs to be evidence-based and delivered using evidence-based approaches (i.e., approaches that have been proven through rigorous, quasi/experimental research designs to make a difference for children); is influenced by communities of practice, within- and across-settings, but also with researchers who can add to educators' learning; and needs to align with current educational policy and requirements e.g., speak to existing frameworks, focus on current priority areas, be appropriate to the diversity of the current workforce, etc. (Siraj et al., 2018). This broader conceptualisation of PD is important as it acknowledges the active role of the educator in expanding quality and child development while acknowledging the need for practice change and creativity to be supported across multiple levels of influence: individual, centre/community and political levels.

PD programs that support change and improvement include a number of features or critical components (e.g., Buysse, Winton, & Rous, 2009; Dunst, Trivette, & Hamby, 2010; King, 2014; Schachter, 2015). Exactly what those key features are remains contested (see Schachter, 2015), but encompass such process and contextual variables as facilitator qualities and expertise, personal and professional characteristics of participants, workplace culture, content rigour, and sustainability. The following sections provide an overview of (i) the process of change educators and centres need to undergo for PD to 'succeed' (ii) critical components of *effective* PD divided into the 'who', 'what' and 'how' of design and delivery, as well as (iii) some of the inherent challenges facing the ECEC PD context.

Professional Development Frameworks to Support Educator Effectiveness

PD, when it is well-designed and -delivered, fills the gaps in knowledge and skills that are often remaining after initial educator training programs, and it keeps educators up-to-date with research into best practice (Egert et al., 2018; Markussen-Brown et al., 2017; Schachter, 2015). This is particularly salient in ECEC, within which there are significant variations in educator qualifications combined with a growing and changing body of research into 'what works' for children. In the rapidly developing field of ECEC PD

research, there is much consideration of its structure, communication, shared frameworks and use of language.

Buysse et al. (2009) refer to the “who”, “what” and “how” of PD programs with variance occurring across three intersecting contexts: (a) at the participant level i.e., the learner and the provider, (b) the type of content (i.e., targeted knowledge, skills and dispositions), and (c) the organisation and facilitation of the educational process i.e., duration, structure (see also Sheriden et al., 2009; Snyder et al., 2012; Zaslow et al., 2010). Egert et al. (2018) drew on this framework to guide their meta-analytic review of PD interventions, where the “who”, “what” and “how” were considered important in both framing PD design and development, while highlighting the inherent complexities and challenges facing PD effectiveness and evaluation.

PD success depends, in part, on the translation of new levels of understanding or ‘content knowledge’ into skilful, sustainable practice and professional growth. Desimone (2009, 2011) proposed a conceptual framework for effective PD which not only addresses the “who, what and how” but considers the *process of influence* on educators *and* children’s outcomes: (i) educators experience the PD, (ii) PD increases educators’ knowledge and skills and/or changes their attitudes and beliefs, (iii) educators use their knowledge, skills, attitudes and beliefs to improve the content of their instruction and/or their approach to pedagogy, and (iv) instructional changes introduced by the educators boosts the children’s learning.

Many of these concepts re-emerge in the work of Kingston (2017) who grouped those more widely acknowledged features into three domains: (i) *content*: evidence-based practice including links between theory and practice, specialist expertise, assessment and planning; (ii) *process/delivery*: intensity, duration and attendance, as well as collaboration, role and expertise of the facilitator, critical mass of staff and the involvement of managers/leaders, time for reflection; and (iii) *affect*: developing professional relationships, motivation, confidence and supporting personal characteristics. Added to this model is the need to adopt different methods of training (i.e., whole group, in-centre mentoring) and the provision of ongoing support (Siraj, Kingston, et al., 2017). These frameworks are not only important for framing the PD process, but in supporting analysis of impact. Together these frameworks highlight the complex interplay among personal characteristics, content and

design when developing effective models of PD intervention. The following sections consider the ‘who’, ‘what’ and ‘how’ ingredients for PD to succeed.

Critical components of effective PD: The ‘who’ of professional development

One well-documented challenge for any PD study conducted in ECEC is the diversity of educators working within it – the ‘who’. Early years educators often have diverse backgrounds, understandings and experiences, as well as different qualifications and roles within their settings. Information gathered about the educators, their classroom practice, qualifications and experiences prior to attending the PD can usefully support PD design and ensure the relevance of the content covered (Kyriakides et al., 2009; Siraj et al., 2018).

Given individual differences between educators, they may benefit from different approaches to PD and different PD content. In PD approaches that involve coaching and mentoring of individual staff, adjustments can be made for individuals/groups (see Desimone & Pak, 2017; Pianta et al., 2017). In group-based PD, however, the differences need to be addressed in a different way. Large group PD interventions work best when they are sensitive to individual differences and support learner diversity by advocating team working and collaboration, and by adopting different styles and processes for learning that allow for educators to change at their own pace (see Neilsen-Hewett, Siraj, Howard, Grimmond, & Fitzgerald, 2018; Siraj et al., 2018).

High rate of staff turnover is a particular challenge for the ECEC context, especially in settings with low levels of quality (Whitebook, Phillips, & Howes, 2014). The long-term impact of PD interventions is often limited when staff leave the centre before implementing and embedding PD-related change. This can be pre-empted by PD promoting ‘whole-centre change’ in combination with models of sustainability. Involvement of multiple staff from the same room/setting not only creates networks of practice within the centre, but increases the likelihood of skills transfer from the training setting to the classroom context. Inclusion of more than one staff member also facilitates professional discussions and reflective practice within the classroom context and is valued by participating educators (Siraj et al., 2018).

The ‘who’ of PD captures not only the recipients of the PD but also the facilitators. Internationally, governments are investing heavily in PD but with little or no systematic

regulation or monitoring of the skills, knowledge and qualifications of the person/people delivering the PD (Schachter, 2015; Siraj, Kingston, et al., 2017). Given the links between educator knowledge and skills with children's learning, it makes sense that these same factors should be prioritized in the adult training milieu. Indeed, a recent process evaluation by Siraj et al. (2018) showed the fidelity and effectiveness of the PD were linked to the capability, credibility and knowledge of those delivering the PD – this being the most oft-cited catalyst for practice change amongst educators. Educators involved in the study commented on the approachability, knowledge base and professionalism of the facilitators and *their* feeling of being valued and treated as 'professionals'.

Critical components of effective PD: The 'what' of professional development

Attempts to enhance educator practice must consider 'what' approaches to pedagogy are important for young children's learning and development. Large-scale studies of ECEC suggest that too few educators have the necessary skills and knowledge to plan and provide optimal learning and social-emotional support for young children's intellectual and emotional development (Howes et al., 2008). Additionally, knowledge and understanding of child development and age-appropriate subject knowledge can be inadequate or inaccurate due to the way it is presented in some initial education and teaching courses and ongoing PD sessions (Siraj, Cheeseman, & Kingston, 2017). To this end, the 'what' (or the *content* of PD), should be informed by empirical research and evidence-based practices important for fostering children's development as well as a deeper understanding of what is missing in the current ECEC workforce.

There have been a number of comprehensive studies highlighting the importance of the adult's pedagogical approach in supporting young children's learning and development. Effective pedagogy depends, in part, on the educators' ability to develop meaningful, secure and trusting relationships with children – and to use this as the foundation for engaging with children in meaningful activities that promote children's conceptual understanding of the world (Howes et al., 2008; Pianta, Belsky, Houts, & Morrison, 2007; Siraj-Blatchford et al., 2003). Findings from the OECD's (2012) review of pedagogical knowledge and practices show that, in addition to quality adult-child relationships, effective educators also require: a good understanding of child development and learning; the ability

to develop children's perspective and elicit children's ideas; the ability to target lesson plans; praise, comfort, question, and show responsiveness to children; enrich children's language with their sound vocabulary; and also show good leadership skills.

The 'what' of PD design should reflect a rich evidence-base of practices known to support children's development. The Researching Effective Pedagogy in the Early Years (REPEY) study (Siraj-Blatchford, Sylva, Muttock, Gilden, & Bell, 2002) – drawing on data from the longitudinal Effective Provision for Pre-school Education (EPPE) study (Sylva, Melhuish, Sammons, Siraj-Blatchford, & Taggart, 2004) – examined the quality of pedagogy in ECEC services that had proven effectiveness for children's learning. The authors provide a detailed list of educator skills and understandings which were found to be associated with effective ECEC practice and better child outcomes on the basis of their analyses. These were:

- strong leadership and staff stability
- equal focus on children's cognitive development and social development
- a mixture of practitioner-initiated small group work and freely chosen play
- adult-led interactions which involve sustained shared thinking (SST) and open-ended questioning to extend children's thinking
- differentiated learning opportunities
- strong parental involvement, especially in terms of shared educational aims
- formative assessment and regular reporting and discussion with parents about their child's progress
- inclusion of behaviour policies in which staff support children in rationalising and talking through their conflicts

Similarly, findings from a recent case study of effective practice conducted in Australian ECEC settings (Neilsen-Hewett et al., 2018) reinforced the REPEY findings with child outcomes linked to: high levels of intentional and relational pedagogy; valuing of diversity and responsiveness to individual needs with use of assessment to inform planning; opportunities for critical reflection, reflective practice and staff collaboration; inclusion of a broad range of curriculum content and integrated experiences; commitment to quality leadership and staff collaboration; supportive management structure; and effective communication and connections with families and the broader community. While all of

these aspects of quality practice served to support children in different ways, all were considered necessary to achieve the high-quality environments necessary for fostering child growth and development.

One of the more robust findings is the effect of educator knowledge around key curriculum areas for children's learning (Buysse, Castro, & Peisner-Feinberg, 2010; King, 2014; Neilsen-Hewett et al., 2018; Neuman & Cunningham, 2009). The importance of good foundations in language development and literacy, emergent science and numeracy development is well documented (Neuman & Cunningham, 2009; Powell, Diamond, Burchinal, & Koehler, 2010). Content knowledge in isolation, however, is insufficient to enhance children's learning (Justice, Mashburn, Hamre, & Pianta, 2008). Effective PD interventions should not only focus on curriculum content, but ensure educators feel confident to teach aspects of literacy, numeracy and science at the appropriate levels and to support parents/carers in developing their children's literacy, numeracy and scientific exploration in the home learning environment; they need to be able to link learning to the children's interests, and support children to understand the purpose and function of their learning (Justice et al., 2008; Siraj & Kingston, 2014).

An awareness of child development *theories* e.g., on play or language has also been found to underpin educators' understanding of, and support for children's learning and engagement. Over the last 20 years, the understanding of, and potential uses for, knowledge of child development theory has been contested, in particular, by those who follow a post-modernist perspective and question the usefulness of the concept of quality (e.g., Dahlberg, Moss, & Pence, 1999). This view is possibly due to the way that child development norms have been used to test, label and even exclude some children from the mainstream because of their results. This, however, is not the way that child development is now typically used – particularly in research considering effective practice and enhanced children's learning and development. Understanding how children learn best supports for the whole child and assessment and planning for teaching and learning align with a more contemporary view of child development (Daniels & Clarkson, 2010). Educators' over-reliance “on consensual notions of practice and tacit understandings” (Stephen, 2012, p. 236) of theory may actually undermine professionalism in the ECEC workforce, leaving educators ill-equipped to re-conceptualise pedagogical shifts, develop new ideas and innovations, and enact practices

important to child learning outcomes.

Critical components of effective PD: The ‘how’ of professional development

Findings from a recent review of the ECEC PD literature conducted by Schachter (2015) underscores the inherent complexity embedded within models of PD delivery. From the 73 studies that met inclusion criteria, a total of 35 different delivery mechanisms were identified. While there is no one single ‘correct’ mode of delivery, there are some underlying assumptions that inform the ‘how’ of effective PD design. For example, while a range of delivery approaches have been used including coaching, training workshops and online resources (Desimone & Pak, 2017; King 2014; Pianta et al., 2017; Siraj et al., 2018), there is common agreement that one-off initiatives do not work. ‘Time’ which encompasses both duration and intensity has been shown to positively impact educator effectiveness, with research showing direct links between the duration and intensity of the PD and improvements in educator knowledge, skills and practices (Garet, Porter, Desimone, Birman, & Yoon, 2001). To develop and implement PD for transformational change, there needs to be consideration that practice change requires on-going support, multidimensional methods of training, time for reflection, as well as opportunities to try and refine new skills, ideally in a conceptually aligned community of educators. Educators need opportunity to practice and evaluate interactions within, between and beyond the training (Siraj et al., 2018).

To develop and implement PD that has transformational change – that is, has impact across the service in multiple areas, and influences child outcomes, there needs to be acknowledgement that the high-quality interactions children require for their own learning may not be familiar to many early years educators themselves. Research comparing PD that focuses on relationship-building with PD that focuses on written elements, or is mostly web-based, demonstrates that the relationship-building approach leads to increased adult-child positive interactions and child development in literacy, language and social and physical behaviour (Archer & Siraj, 2015; Downer, LoCasale-Couch, Hamre, & Pianta, 2009; Mashburn, Downer, Hamre, & Pianta, 2010; Pianta, Mashburn, Downer, Hamre, & Justice, 2008). Educators need to be familiar with high-quality practice in order to bring it about in their own practice and for content to be effective. It needs to be embedded within a

broader practice framework (Neuman & Cunningham, 2009). For this reason, the ‘how’ of PD must include opportunities for modelling these high-quality interactions, while providing rich examples and illustrations of quality for learning and reflection. Further, relationship building through PD should also extend the skill set of ECEC educators to work more effectively in partnership with families – an essential feature of high quality ECEC.

Further, effective PD *processes* should be developed to support and facilitate collective participation of educators and directors from the same settings, thereby creating cohesion in their approach. Experiential forms of PD have gained considerable support, especially when paired with implementation supports e.g., coaching, mentoring, consultation, communities of practice (Diamond & Powell, 2011; Snyder et al., 2012). Such joint participation helps to support a professional culture and ensures sustainability of new techniques and skills (for a discussion see Zaslow et al., 2010). PD that includes multiple sessions and ongoing support provides opportunities for relationship-building between facilitators and educators, as well as between educators themselves, forming new ‘communities of practice’.

The role of the community in supporting practice change

In contrast to the traditional static single-educator focus, emerging models of PD effectiveness conceptualise PD as fostering sustained and continuous learning, that is collaborative, intensive, adopts a classroom focus and is part of the broader centre culture. Communities of practice (or educator networks) are pivotal to organisational learning and quality improvement. These communities provide a space and means for developing reciprocal professional relationships, guiding implementation, promoting educator motivation and confidence, while informing practice and supporting cycles of reflective practice and sustainability (Hayes, Siraj-Blatchford, Keegan, & Goulding, 2013; Neilsen-Hewett et al., 2018). Practitioner networks are an integral source of knowledge while creating a platform for ongoing “collaboration and co-creation, evaluation and critical reflection and [the creation] of opportunities for ongoing, sustainable transformation” (Jensen & Iannone, 2018, p. 28). Communities of practice are seen to elevate the curriculum renewal and quality improvement process beyond the scope of the individual to encompass multi-stakeholders.

Taking PD to scale while maintaining ecological validity and fidelity presents inherent challenges with respect to both delivery and cost. The proliferation of online spaces provides an emerging platform for PD delivery, and creation and maintenance of communities of practice. When paired with face-to-face delivery, which is crucial for the establishment of high-quality interactions, online spaces have the potential to modify the PD landscape (Arikan, Fernie, & Kantor, 2017; Downer, Kraft-Sayre, & Pianta, 2009). These virtual communities of practice can be used to build upon face-to-face PD delivery by reinforcing content, supporting educators to share examples of good practice, providing opportunities for ongoing renewal of quality pedagogy, and further aiding sustainability. The effectiveness of these networks and the potential for them to create or foster communities of effective practice depends, in part, on who the members are and the knowledge, skills and beliefs of those members. Skills beget skills; practitioner networks have the potential to foster high quality practice, but they also have the potential to perpetuate poor practice in the absence of quality mentorship, as can be the case in online groups created through social media platforms. For online PD environments to be effective, however, they need to achieve the same standard and characteristics outlined in traditional PD frameworks, such as online mentoring by expert facilitators and rigorous review and validation of shared materials (Siraj et al., 2018).

Concluding Discussion

Currently, across many countries, governments, professional organisations and individual services are investing heavily in PD (King, 2014; Markussen-Brown et al., 2017). This is motivated largely by the belief that PD is the most efficient and effective means of lifting educator practice important for children's development. This, of course, depends on the PD being designed and delivered in ways that support practice change while embedding content and pedagogical practices known to be important in fostering outcomes in children.

Despite substantial investment of time and money, there has been little to no systematic monitoring of the quality of PD options on offer (Egert et al., 2018; Jensen & Iannone, 2018). A focus on maximum impact in the shortest time, government funding constraints

and ethical considerations (i.e., withholding potentially effective PD from a selection of centres to enable comparison of PD-facilitated change against routine levels of change) also reduces the opportunity for more robust evaluation (i.e., experimental design) that can confidently ascribe changes to the PD program. Egert et al.'s (2018) review shows many studies do not include robust evaluation designs, like an RCT design, or measure the PD's impact on child outcomes (which is the ultimate aim of any ECEC practice change).

As such, questions persist in the PD literature concerning which PD approaches are particularly effective (e.g., coaching vs group based; online vs face-to-face), for whom (e.g., educator/classroom or child outcomes), and for achieving which outcomes e.g., adult-child relationships, improved language and literacy, self-regulation (Egert et al., 2018). Continued widespread focus on PD implementation within the ECEC context as a key mechanism to improve outcomes for children necessitates answers to these questions – achieved through more-robust and more-comprehensive approaches to PD evaluation. Further, PD efficacy should be evaluated in terms of: (i) changes within the classrooms/ settings, such as enhanced skills and knowledge of the educators (as measured by reliable Quality Rating Scales during observations of practice); (ii) changes in the educators' beliefs and attitudes (through questionnaires or interviews); and (iii) changes in the children's developmental outcomes (as measured by appropriate child assessment of children's developmental progress). To confidently ascribe these as a change resulting from PD participation, information is also needed about where these factors started (pre-PD) and ended (post-PD) and expected levels of change without PD, in the intervention groups. It is only with comprehensive and rigorous design and evaluation that we can reliably determine the benefits of professional development for educators *and* children.

References

- Archer, C., & Siraj, I. (2015). *Encouraging physical development through movement-play*. London, England: Sage.
- Arikan, A., Fernie, D. E., & Kantor, R. (2017). Supporting the professional development of early childhood teachers in Head Start: A case of acquiring technology proficiency.

Elementary Education Online, 16, 1829-1849.

- Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: Freeman.
- Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In R. M. Lerner, & W. Damon (Eds.), *Handbook of child psychology: Theoretical models of human development* (pp. 793-828). Hoboken, NJ: John Wiley & Sons Inc.
- 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(2), 194-206. doi:10.1016/j.ecresq.2009.10.001
- Buysse, V., Winton, P. J., & Rous, B. S. (2009). Reaching consensus on a definition of professional development for the early childhood field. *Topics in Early Childhood Special Education*, 28, 235-243.
- Cooke, S., & Lawton, K. (2008). *For love or money: Pay, progression and professionalization in the 'early years' workforce*. Retrieved from https://www.ippr.org/files/images/media/files/publication/2011/05/for_love_or_money_1633.pdf
- Cordingley, P., Higgins, S., Greany, T., Buckler, N., Coles-Jordan, D., Crisp, B., ... Coe, R. (2015). *Developing great teaching: Lessons from the international reviews into effective professional development*. Retrieved from <https://tdtrust.org/wp-content/uploads/2015/10/DGT-Full-report.pdf>
- Dahlberg, G., Moss, P., & Pence, A. (1999). *Theoretical perspectives: Modernity and postmodernity, power and ethics*. London, England: Routledge.
- Daniels, D. H., & Clarkson, P. K. (2010). *A developmental approach to education's young children*. London, England: Sage Publications.
- Desimone, L. M. (2009). Improving impact studies of teachers' professional development: Toward better conceptualizations and measures. *Educational Researcher*, 38(3), 181-199. doi:10.3102/0013189X08331140
- Desimone, L. M. (2011). A primer on effective professional development. *Phi Delta Kappan*, 92(6), 68-71. doi:10.1177/0031721711109200616
- Desimone, L. M., & Pak, K. (2017). Instructional coaching as high-quality professional development. *Theory Into Practice*, 56(1), 3-12. doi:10.1080/00405841.2016.1241947

- Diamond, K. E., & Powell, D. R. (2011). An iterative approach to the development of a professional development intervention for Head Start teachers. *Journal of Early Intervention, 33*(1), 75-93. doi:10.1177/1053815111400416
- 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 and Development, 20*(2), 321-345. doi:10.1080/10409280802595425
- Downer, J., LoCasale-Couch, J., Hamre, B., & Pianta, R. C. (2009). Teacher characteristics associated with responsiveness and exposure to consultation and online professional development resources. *Early Education and Development, 20*(3), 431-455. doi:10.1080/10409280802688626
- Dunst, C. J. (2015). Improving the design and implementation of in-service professional development in early childhood intervention. *Infants & Young Children, 28*(3), 210-219. doi:10.1097/IYC.0000000000000042
- Dunst, C. J., Trivette, C. M., & Hamby, D. W. (2010). Meta-analysis of the effectiveness of four adult learning methods and strategies: Supplemental tables and references. *International Journal of Continuing Education and Lifelong Learning, 3*(1), 91-112.
- Egert, F., Fukkink, R. G., & Eckhardt, A. G. (2018). Impact of in-service professional development programs for early childhood teachers on quality ratings and child outcomes: A meta-analysis. *Review of Educational Research, 88*(3), 401-433. doi:10.3102/0034654317751918
- Fukkink, R., & Lont, A. (2007). Does training matter? A meta-analysis and review of caregiver training studies. *Early Childhood Research Quarterly, 22*(3), 294-311. doi:10.1016/j.ecresq.2007.04.005
- Garet, M. S., Porter, A. C., 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*(4), 915-945. doi:10.3102/00028312038004915
- Hayes, N., Siraj-Blatchford, I., Keegan, S., & Goulding, E. (2013). *Evaluation of the childhood development initiative's early years programme*. Dublin, Ireland: Childhood Development Initiative (CDI).

- Howes, C., Burchinal, M., Pianta, R. C., Bryant, D., Early, D., Clifford, R., & Barbarin, O. (2008). Ready to learn? Children's pre-academic achievement in prekindergarten programs. *Early Childhood Research Quarterly*, 23(1), 27-50. doi:10.1016/j.ecresq.2007.05.002
- 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(1), 23-33. doi:10.1111/ejed.12253
- 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(1), 51-68. doi:10.1016/j.ecresq.2007.09.004
- King, F. (2014). Evaluating the impact of teacher professional development: An evidence-based framework. *Professional Development in Education*, 40(1), 89-111. doi:10.1080/19415257.2013.823099
- Kingston, D. (2017). *Evaluating improvement using environment rating scales: A case study of a targeted training intervention in private, voluntary and independent pre-schools in one local authority* (Unpublished doctoral dissertation). IoE UCL, London, England.
- Kyriakides, L., Creemers, B. P. M., & Antoniou, P. (2009). Teacher behaviour and student outcomes: Suggestions for research on teacher training and professional development. *Teaching and Teacher Education*, 25(1), 12-23. doi:10.1016/j.tate.2008.06.001
- Markussen-Brown, J., Juhl, C. B., Piasta, S. B., Bleses, D., Hojen, 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. doi:10.1016/j.ecresq.2016.07.002
- Mashburn, A., Downer, J., Hamre, B., & Pianta, R. C. (2010). Consultation for teachers and children's language and literacy development during pre-kindergarten. *Applied Developmental Science*, 14(4), 179-196. doi:10.1080/10888691.2010.516187
- Neilsen-Hewett, C., Siraj, I., Howard, S., Grimmond, J., & Fitzgerald, C. (2018). *Fostering effective early learning (FEEL) study: Case studies of effective practice*. Sydney, Australia: NSW Department of Education.

- 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(2), 532-566. doi:10.3102/0002831208328088
- Organisation for Economic Co-operation and Development (OECD). (2012). *Encouraging quality in early childhood education and care (ECEC)*. Retrieved from <http://www.oecd.org/education/school/49322232.pdf>
- Pianta, R. C., Barnett, W. S., Burchinal, M., & Thornburg, K. R. (2009). The effects of preschool education: What we know, how public policy is or is not aligned with the evidence base, and what we need to know. *Psychological Science in the Public Interest*, 10(2), 49-88. doi:10.1177/1529100610381908
- Pianta, R. C., Belsky, J., Houts, R., & Morrison, F. (2007). Opportunities to learn in America's elementary classrooms. *Science*, 315(5820), 1795-1796. doi:10.1126/science.1139719
- Pianta, R., Hamre, B., Downer, J., Burchinal, M., Williford, A., LoCasal-Crouch, J., ... Scott-Little, C. (2017). Early childhood professional development: Coaching and coursework effects on indicators of children's school readiness. *Early Education and Development*, 28(8), 956-975. doi:10.1080/10409289.2017.1319783
- Pianta, R. C., Mashburn, A., Downer, J., 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(4), 431-451. doi:10.1016/j.ecresq.2008.02.001
- Powell, D. R., Diamond, K. E., Burchinal, M. R., & Koehler, M. J. (2010). Effects of an early literacy professional development intervention on Head Start teachers and children. *Journal of Educational Psychology*, 102(2), 299-312.
- Schachter, R. E. (2015). An analytic study of the professional development research in early childhood education. *Early Education and Development*, 26(8), 1057-1085. doi:10.1080/10409289.2015.1009335
- Sheridan, S. M., Edwards, C. P., Marvin, C. A., & Knoche, L. L. (2009). Professional development in early childhood programs: Process issues and research needs. *Early Education Development*, 20(3), 377-401. doi:10.1080/10409280802582795
- Siraj, I., Cheeseman, S., & Kingston, D. (2017). *Quality interactions study (QIS) final*

- report*. Parramatta, Australia: NSW Department of Education.
- Siraj, I., & Kingston, D. (2014). *An independent stocktake of the Foundation Phase in Wales Final Report*. Retrieved from <http://dera.ioe.ac.uk/20340/1/140519-independent-stocktake-of-the-foundation-phase-in-wales-en.pdf>
- Siraj, I., & Kingston, D. (2015). *An independent review of the Scottish early learning and childcare (ELC) workforce and out of school care (OSC) workforce*. Retrieved from <http://www.gov.scot/Publications/2015/06/5902/downloads>
- Siraj, I., Kingston, D., Neilsen-Hewett, C., Howard, S. J., Melhuish, E., de Rosnay, M., ... Luu, B. (2017). *A review of the current international evidence considering quality in early childhood education and care programmes – in delivery, pedagogy and child outcomes*. Sydney, Australia: NSW Department of Education.
- Siraj, I., Melhuish, E., Howard, S. J., Neilsen-Hewett, C., Kingston, D., de Rosnay, M., ... Luu, B. (2018). *Fostering effective early learning (FEEL) study*. Sydney, Australia: NSW Department of Education.
- Siraj-Blatchford, I., Sylva, K., Muttock, S., Gilden, R., & Bell, D. (2002). *Researching effective pedagogy in the early years (REPEY): DFES Research Report 356*. London, England: Department for Education and Skills (DfES).
- Siraj-Blatchford, I., Sylva, K., Taggart, B., Sammons, P., Melhuish, E., & Elliot, K. (2003). *The effective provision of pre-school education [EPPE] project: A longitudinal study funded by the DfEE (1997-2003) technical paper 10 intensive case studies of practice across the foundation stage*. Retrieved from University College London website: http://www.ioe.ac.uk/EPPETechnicalPaper_10_2003.pdf
- Snyder, P., Hemmeter, M. L., Meeker, K. A., Kinder, K., Pasia, C., & McLaughlin, T. (2012). Characterizing key features of the early childhood professional development. *Infants and Young Children, 25*(3), 188-212. doi:10.1097/IYC.0b013e31825a1ebf
- Stephen, C. (2012). Looking for theory in preschool education. *Studies in Philosophy and Education, 31*(3), 227-238. doi:10.1007/s11217-012-9288-5
- Sylva, K., Melhuish, E., Sammons, P., Siraj-Blatchford, I., & Taggart, B. (2004). *The effective provision of pre-school education (EPPE) project: Final report*. Nottingham, England: DfES Publications.
- Timperley, H., Wilson, A., Barrar, H., & Fung, I. (2007). *Teacher professional learning*

and development: Best evidence synthesis iteration. Wellington, New Zealand: Ministry of Education.

- Whitebook, M., Phillips, D., & Howes, C. (2014). *Worthy work, STILL unliveable wages: The early childhood workforce 25 years after the National Child Care Staffing Study.* Berkeley, CA: Center for the Study of Child Care Employment, University of California, Berkeley.
- Yoshikawa, H., Leyva, D., Snow, C. E., Trevino, E., Barata, M. C., Weiland, C., ... Arbour, M. C. (2015). Experimental impacts of a teacher professional development program in Chile on preschool classroom quality and child outcomes. *Developmental Psychology*, *51*(3), 309-322.
- Zaslow, M., Tout, K., Halle, T., Whittaker, J. V., & Lavelle, B. (2010). *Toward the identification of features of effective professional development for early childhood educators. Literature review.* Washington, DC: Child Trends.