

**Educating the Educators:**  
**Effective Practices for Early Childhood**  
**Teachers' Training and Professional Development**

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## **Executive summary**

The rich developmental growth that occurs in early childhood makes providing young children with stimulating and developmentally appropriate early childhood education (ECE) environments an important target for promoting positive developmental trajectories. Traditionally, research studies designed to identify ECE pathways that promote positive child development have typically measured the impact of structural ECE components, such as the quality and availability of appropriate learning materials and the formal educational credentials of teachers. These inquiries have offered inconsistent findings and largely inconclusive results. Weak support for structural components of ECE has shifted researcher focus toward process elements of ECE (e.g. teacher-child relationships and classroom emotional tone), with promising findings. An emerging body of work has identified significant patterns of association between responsive teacher-child interactions, and positive emotional classroom climates, and augmented child academic and social-emotional outcomes. Inconsistent effects of teacher credentials on child outcomes call into question teacher preparation program practices, and the quality of in-service professional development teachers receive. Identifying effective practices in teacher training, professional development, and curriculum instruction offers an important area of investigation as policy makers and educators continue to work toward supporting improved outcomes for young children through ECE participation.

### ***Teacher Training***

Analyses of teacher preparation programs across the United States show highly variable quality of instruction and breadth and depth of coursework requirements. Efforts to establish effective preparation standards must ensure new teachers are:

- Exposed to course content that prepares teachers to work effectively with children and families from diverse language and cultural backgrounds
- Provided intensive coursework pertaining to child development (ideally across the preschool to third grade continuum)
- Taught evidence-supported curricular and teaching practices, especially in the areas of developing social-emotional, early math, and early literacy and language competencies in young children
- Offered the opportunity to experience diverse, high quality, well supervised pre-service practicum and student teaching placements
- Supported through on-going mentorship and coaching while transitioning from preparation into teaching roles.

### ***Professional Development***

In-service professional development (PD) represents another area for promoting successful teaching in ECE and beyond. Examination of effective PD practices suggests that teachers benefit from PD that is:

- Specialized and directly applicable to classroom needs and experiences
- Sustained over longer periods of time through regular mentoring or coaching after participation in initial workshop trainings
- Collaborative and encourages support for teachers from different grade levels, especially for teachers in an aligned P-3 model

- Focused on promoting evidence-supported process components of teaching, namely teacher-child interactions and classroom emotional tone

### *Next Steps*

The growing body of literature examining best practices in ECE instruction has provided the field with important initial direction for improving instruction in ECE classrooms, and has illuminated current lapses in practice, and areas for growth and improvement. While significantly more research in this area is needed, efforts to improve ECE teacher quality should consider:

- **Novel uses for technology in teacher training and professional development.** Development of web-based interfaces, such as web conferences and video sharing protocols, offer a cost-effective means for direct mentorship and coaching to teachers, regardless of geography or logistical barriers
- **Development of practice-based assessment of process classroom features,** such as teacher child interactions and classroom emotional tone, to help guide teachers' practice and improve class conditions
- **Children's rich neurological development,** and alignment of education practices with new discoveries in neural growth and organization in young children
- **The development of executive function in young children,** and implementation of practices that support young children's ability to gain emotional self-regulation skills
- **Bridging the home-school disconnect by recognizing parents' vital contributions** to child academic success, and offering opportunities to families to become more engaged in their child's academic achievement
- **Providing teachers with appropriate compensation** for the rich, multi-faceted work they do. Increasing teacher salaries and creating incentives for participation in teacher preparation through scholarships and loan-forgiveness program are viable methods for providing teachers with recompense that acknowledges the societal significance of the service they provide.

Evidence displaying the expansive developmental growth children experience in their first years of life has resulted in a large body of research examining pathways for augmenting and supporting beneficial child development<sup>1</sup>. The richness of young children's growth increases the impact of supportive interventions, such as high quality early childhood education (ECE), to facilitate optimal child development outcomes<sup>1</sup>. Research has correspondingly confirmed significant beneficial outcomes associated with participation in high quality, comprehensive early childhood education<sup>2-8</sup>. While the impact of structural characteristics of school environments (e.g. teacher education credentials and classroom materials) have been traditionally observed in the literature, recently emerging findings indicate that process oriented components of development (e.g. teacher-child interaction and classroom emotional climate) hold better power for predicting child outcomes than structural facets<sup>9-13</sup>.

Previous investigations have yielded important findings unequivocally correlating program quality and investment with improved child outcomes, but analyses of teacher qualifications and credentials (e.g. BA degrees) have failed to consistently predict child academic success<sup>14-16</sup>. In a meta-analysis of seven large-scale ECE studies, researchers failed to consistently and significantly identify effects of teacher education on child academic and developmental outcomes<sup>15</sup>. These analyses did find that teachers with BA degrees displayed marginally significant effects of predicting child math skill and effective instruction, and teachers with graduate degrees displayed better quality of teaching and teacher-child interaction<sup>15</sup>. However, significant findings are limited and have yet to be reliably replicated. These findings are of concern for policy makers given current movements to establish BA degrees as minimum requirements for ECE teachers in state- and federal-funded

programs<sup>14,15,17,18</sup>. While these standards may not be fully misguided, as BA degree requirements hold the potential to professionalize the ECE field and increase expectations that teachers are better equipped to successfully implement evidence-supported practices; BA teacher preparation education, as offered today, does not show evidence of significantly improving classroom quality or child outcomes<sup>15,18</sup>.

Despite inconclusive evidence supporting teacher training and child outcomes, current research shows significant support for the quality of teacher-child relationships, and the emotional tone of the classroom environment, as better predictors of child academic and social-emotional success than classroom structural components and teacher credentials<sup>9,11-13,19,20</sup>. While this research is nascent, and requires replication of findings in order to truly establish its' validity, the theoretical underpinnings of this work replicate widely accepted tenets of child development (see Appendix A for further discussion). Given these findings, extensive examination of the content and scope of ECE teacher preparation is warranted, as is better understanding of the quality and content of in-service support and professional development teachers' receive once in the field, in order to identify teaching strategies that promote positive child academic trajectories.

### **Teacher Training: Are ECE Teacher Preparation Programs Adequate?**

A primary question, given inconclusive findings supporting teacher credentials as a predictor of child outcomes is what type of instruction ECE teacher preparations programs offer their students. Generally speaking, ECE teacher preparations programs are observed to vary significantly with regard to regional availability, coursework requirements and contents, practicum opportunities, and faculty experience<sup>9,15,18,21-24</sup>. Estimates suggest that only 55% of American Association of College and Teacher Education member institutions currently offer BA

degrees specializing in ECE, many of which include comprehensive teacher education from preschool to third grade (P-3), and hold significantly variable between-program standards<sup>21,25</sup>. Both the National Association for the Education of Young Children (NAEYC) and the National Council for Accreditation of Teacher Education (NCATE) offer guidelines for ECE teacher preparation standards; however, consensus regarding the implementation of prescribed standards in preparation programs contends that most programs do not sufficiently incorporate these markers in program delivery<sup>21,24,25</sup>. Instead, teacher preparation courses tend to rely on increasingly antiquated educational perspectives that fail to recognize the full learning potential of young children, are poorly aligned with real-world experiences and professional standards, and offer only superficial exploration of child development across the P-3 early education continuum<sup>21,24</sup>.

### ***Diversity and Multicultural Training***

In addition to the limitations of ECE teacher training programs, several specific lapses in ECE teacher program curricula have also been identified. Of primary concern is a recent estimate that shows only 43% of ECE preparation programs require coursework specifically focusing on content for working with children and families from multiple cultures and backgrounds<sup>21</sup>. Augmenting teacher understanding and competence for working with children and families from diverse cultural and ethnic backgrounds is increasingly critical; the fastest growing segment of the American population is the immigrant population, resulting in one in five children who enter public schools coming from an immigrant family, and 70% of these children speaking a language other than English in their homes<sup>21</sup>. Given the growth of the immigrant community in the United States, and frequently reported teacher accounts of feeling ill-equipped to work with children who are English language learners, enhancing diversity competencies for newly trained teachers

marks a critical priority for improving teacher performance and confidence in the classroom<sup>21,26</sup>. Additionally, teacher training must integrate coursework that explores best-practices for working with children with special needs and differential abilities<sup>21,26</sup>. Of the reviewed programs, special education training received increased attention, when compared with cultural diversity training opportunities, but still represents an area for increased instruction during teacher preparation<sup>21</sup>.

### ***Strong Foundational Knowledge of Child Development***

Of equal, or perhaps greater importance, is the provision of in-depth instruction in child development in teacher training programs. Research repeatedly confirms the efficacy of developmentally appropriate instruction for children, particularly young children and children who are socially or economically disadvantaged<sup>27,28</sup>. Developmentally appropriate practices are contingent upon the teacher's ability to implement activities that maximize each child's individual developmental ability, and foster the child's exploration of the classroom in order to promote learning. Without a sound foundational understanding of developmental growth, a teacher is less likely to identify activities that enhance learning at the child's level, thereby limiting developmental potential and success with early educational activities. Furthermore, given evidence that supports effective instruction as informal and intentional, strong developmental knowledge is integral to encouraging a teacher to "think on her/his toes," and deftly adapt to each child's developmental needs with flexibility and purpose<sup>29</sup>. The importance of in-depth child development knowledge is heightened when considering education along the P-3 continuum, and the sequential construction of child knowledge. Recognizing how development and learning during the preschool years influence subsequent learning experiences helps teachers develop increasingly intentional teaching practices that build foundational child knowledge, and support later outcomes<sup>18</sup>.

### *Developmentally Appropriate Curricula*

The importance of training teachers to facilitate child knowledge acquisition has been increasingly explored through research of developmentally appropriate curricula that promote positive child development. Implementation of evidence-based practice has gained heightened attention in recent years from policy makers and educators, although empirical challenges to stringent research practice (i.e. randomized control trials), and the presence of highly variable ECE practices, pose obstacles to establishing efficacy of curricula<sup>30</sup>. Despite variations and research challenges, several overarching trends of current ECE implementation have emerged, namely: many ECE teachers have been found to largely utilize rote instruction, as opposed to applied or interactive practices; teachers must often devote equal time to classroom management and active instruction due to behavioral disruptions; and while most ECE classrooms have high quality structural components (e.g. books, manipulatives, learning centers), classrooms predominately display moderate to poor levels of process features (e.g. teacher-child relationship, classroom emotional tone)<sup>11,12,19</sup>. Training teachers with evidence-supported curricula before they enter the classroom will mitigate the use of developmentally inappropriate practice from novice teachers' earliest experiences. The following discussion of effective curricular practices explores instruction methods that are identified through randomized control trials, wherein experimental group teachers receive training in specific curriculum through professional development (PD) training. Given the field-based evidence supporting these practices, logic follows that integration of effective strategies into the new teacher's repertoire during preparation will equip newly trained teachers with the tools they require for effective practice from their earliest teaching experiences. This can serve to enhance teacher sense of efficacy, and decrease burn-out in the field.

*Social-Emotional Competency Curricula*

Despite observed limitations of current EC education in the classroom, a variety of interventions that aim to support child achievement have been identified, and are supported by a growing body of evidence displaying their efficacy. Firstly, powerful support continues to emerge affirming the salient benefits of providing young children, especially children who are socially or economically disadvantaged, with early social-emotional developmental support<sup>10,31</sup>. Overall, child social-emotional competence is shown to be a significant predictor of later academic outcomes<sup>10,22,31</sup>. Prosocial children enjoy greater academic success, have increased positive peer and teacher interactions within the classroom, and display increased motivation and commitment to school success<sup>13,31</sup>. Conversely, children lacking social-emotional adjustment skills are found to have increased rates of high school dropout, grade retention, and juvenile delinquency; as well as decreased engagement and enjoyment from school, increased likelihood to react to academic challenges with anger and frustration, and are perceived as harder to reach by teachers<sup>13,31</sup>. Similar correlations between classroom emotional tone and child outcomes have also been found, with classroom tone also significantly predicting child academic achievement<sup>19</sup>. These findings are particularly pertinent given evidence that places increasing importance on the emotional quality of the classroom and teacher-child relationship, and correlates of social-emotional competency with subsequent academic achievement. Likewise, these observations represent a critical target for curricular intervention in ECE in order to promote positive academic and lifetime outcomes for young children.

Studies examining the impact of providing teachers with PD training for implementing a social-emotional competency curriculum in the classroom have found significant beneficial

effects for increasing child social-emotional regulation, emotionally responsive and proactive teacher practices, and overall classroom emotional climate. One specific study trained teachers with the evidence-based Incredible Years social-emotional curriculum, a model that uses small group activities, role play, and puppets to teach children social-emotional awareness and control<sup>13</sup>. While researchers acknowledge that the overall emotional quality of both control and experimental classrooms were rated as “good”, teachers in experimental classes were significantly more effective at providing children with sensitive and responsive teaching, and proactively redirecting negative child behaviors, than control counterparts<sup>13</sup>. Teachers in the experimental condition were also marginally more adept at managing the classroom, resulting in less time spent on management than instruction when compared to controls, and were consistently rated as more enthusiastic teachers than comparison teachers<sup>13</sup>.

### *Literacy Instruction*

Effective literacy instruction in ECE offers yet another area to boost child academic readiness at school entry, and influence improved academic outcomes across school years. Early literacy skills are reliable predictors for later literacy, and literacy in young children proves to be a fairly malleable ability, provided children are afforded effective support for improvement<sup>32</sup>. The promotion of language and literacy skills in ECE has been a primary focus for early educators and curriculum models, due to the importance of ensuring children have a strong literacy foundation for progressive educational experiences. Correspondingly, researchers have also primarily invested in exploring literacy promotion practices, though the uneven focus on literacy skill is shifting thanks to emerging research aimed at understanding of the impact of early childhood mathematic ability (see the Mathematic Instruction section for discussion). Given the amount of attention garnered to ECE literacy instruction, increasing numbers of ECE

classes implement practices evidenced to promote child literacy<sup>33</sup>. The increased prevalence of effective literacy instruction is reflected in several studies identifying a significant drop in long-standing achievement gaps between higher-SES and lower-SES children, with regard to literacy skills; though, a gap is still present, thus warranting continued investigation of successful practices<sup>34-36</sup>.

Contemporary research identifying effective literacy instruction has centered on the benefits of converging two predominate perspectives for literacy instruction: whole language and phonics approaches in ECE instruction<sup>32,37</sup>. Whole language approaches to literacy instruction traditionally emphasize a meaning-based perspective to learning, and capitalize upon the use of literature and text for learning; this theoretically results in a more natural acquisition of reading skill for young children. Conversely, a phonics approach is based upon systematic instruction of individual letters, identifying discrete sounds, and decoding words. Despite an extensive debate over which method proved more effective during the 1990's, research has found that a combination of both models proves to provide children with comprehensive literacy instruction, and improves literacy skill for children across SES<sup>32,37</sup>. This consensus highlights the efficacy of providing children with “systematic, explicit and purposeful experiences with print and sound [to] accelerate emergent literacy development” (<sup>32</sup> p. 53).

After recognizing the effectiveness of a combined approach to literacy training, careful examination of specific teacher practices helps to solidify specific behaviors that support child literacy development. One area offering promise for classroom implementation lies in the use of shared reading activities in ECE classrooms, or activities in which the teacher reads with the children<sup>38</sup>. This practice has been extensively examined in the context of parent-child reading, and has yet to be fully investigated within classrooms, but emerging findings suggests that

shared reading offers untapped potential within the ECE environment as well. Research examining shared reading in the classroom has delineated two primary critical components: the use of contextualized (based on material in the book, consisting of labeling pictures and letters) and decontextualized (eliciting side conversations stemming from book material, such as predicting events in the story, translating story to personal experiences) discussion<sup>38</sup>.

Observations found that most teachers engage primarily in contextualized book discussion, however, decontextualized strategies are shown to promote increased comprehension, vocabulary, and emergent literacy skills<sup>38</sup>. Researchers trained preschool teachers with the “Pathways to Literacy Project,” a program that utilizes shared reading both at home and in the classroom to promote early literacy skills<sup>38</sup>. Their findings show that though the classroom offered fewer conversational experiences than home shared-reading, classrooms did provide children with greater opportunities for higher-level cognitive strategies, such as predicting events in the story<sup>38</sup>. Additionally, the use of decontextualized story expansion was related to increased child vocabulary, and children with lower skill upon initiation of the intervention were found to significantly benefit from teacher’s contextualized discussion of the story, particularly children with attention difficulties<sup>38</sup>.

In addition to the importance of teaching strategies, other research has examined the quality of teacher literacy instruction (quantified as a teacher’s flexibility, responsiveness, and degree of individualized instruction) and child outcomes<sup>32</sup>. Across the board, teacher quality was shown to predict successful child academic outcomes, with some studies observing as much as one year difference in skill in relation to teacher quality<sup>32</sup>. Another study found the emotional climate of the classroom as a primary predictor, displaying marginally greater influence over academic outcome than teacher-child relationship, which was also a significant influence on

child achievement<sup>19</sup>. One limitation to fully understanding teacher quality and literacy instruction lies in the lack of valid teacher literacy instruction assessment tools<sup>39,40</sup>; however, current measure development is underway<sup>11,41</sup>. Validation of such a measure will enhance the ability to recognize teacher practice strengths and weaknesses, and help target specific teaching constructs that increase literacy instruction practice.

### *Mathematic Instruction*

Mathematics instruction has not traditionally been a primary focus for most ECE educators and researchers. Teachers' lack of math instruction is predominately attributed to false perceptions that children aren't prepared for mathematical concepts beyond simple numeracy and arithmetic principles; as well as teachers' own discomfort with mathematical concepts and hesitance to teach children content they themselves are not comfortable with<sup>29,42</sup>. However, analysis of ECE teacher preparation programs also show an overall lack of early mathematic instruction across coursework offerings and requirements<sup>43</sup>. One example of discrepant attention to math instruction is offered in an examination of New Jersey ECE education programs, where only 16% of preparatory programs offered courses explicitly pertaining to mathematic instruction, compared to 80% of programs offering literacy education courses<sup>43</sup>. Additionally, 74% offered mathematics instruction as part of a comprehensive ECE course, and 10% failed to prepare teachers for mathematic instruction in any respect<sup>43</sup>.

Researchers' distance from examining mathematics instruction practices and child skill development is less clear, but is clearly experiencing a shift given increasing attention being paid to mathematics in contemporary research. Important findings driving this shift include critical observations, based on large-scale meta-analysis, that found child early mathematic competence as a more powerful predictor for later academic success than literacy skill<sup>44</sup>. Not only did early

math abilities have greater predictive power for identifying later math skill, but also later literacy achievement<sup>44</sup>. This striking finding, in concert with estimates that rank American students' mathematic skill in the bottom third when compared to international counterparts<sup>43</sup>, calls for an expansion of ECE's conventional focus on literacy skill to include identifying pathways for cognitive growth through early mathematic abilities for children.

Research shows that ECE teachers typically limit early math instruction to superficial concepts, such as discussing a child's age, identifying simple shapes, and counting to 20<sup>29,42</sup>. This limited exploration fails to capitalize on the "everyday mathematics" children inherently engage in, and the higher-level mathematical abilities children are predisposed to learn. Beginning as early as infancy, humans are able to distinguish differential quantity and spatial orientations<sup>43</sup>. Beyond infancy, children intrinsically make order of their environments through counting and organization<sup>29,42</sup>. This natural predisposition to mathematic concepts, coupled with the extensive neurological growth children experience in their early development, makes enhanced math instruction an ideal area for ECE expansion. While children do display limitations with regard to tasks that require assessment of changes in conservation of volume and spatial quantity and certain abstractions (e.g. deciphering mathematic symbols such as +, -, =), they are well equipped to engage in higher-order math activities such as geometry, measurement, arithmetic functions, and simple algebra that are integrated into their learning experiences<sup>42,43,45</sup>.

Specific studies have found that extensive PD teacher training in the Building Blocks mathematic curriculum, a model that emphasizes the teacher's role in engaging student problem solving activities, communication of observed findings, and intentional scaffolding of child skill, results in significantly improved child math outcomes across varying race, gender, SES status, and type of ECE enrollment (private program, Head Start, state-funded preschool)<sup>29,42</sup>. Children

in classrooms with teachers who participated in the workshop, and follow-up coaching, performed significantly better than control group peers on tasks measuring, “verbal counting, recognition of number and subitizing [mental arithmetic], comparison of shape, and shape composition,” as well as improved accuracy and use of mental strategies<sup>42</sup>. Though experimental group teachers did not provide children with significantly more math oriented activities, they did provide children with increased variety of activities to engage children, ranging from games, map composition, shape puzzle activities, and computer software games<sup>42</sup>. The equal frequency of math activities across experimental and control classrooms suggests that the Building Blocks training impacts the quality and methods of teacher practices and instruction, resulting in improved child math skill.

Additional research has also explored general best practices for math instruction, identifying significant benefit for children exposed to math curricula that promoted problem-solving behaviors, and links mathematic knowledge to language development by encouraging children to discuss their findings<sup>43</sup>. Providing children with multi-modal enriching math materials and resources (such as manipulatives, computer access, games, and puzzles) is also a contributor to child achievement<sup>29,43</sup>; however, as seen in previous review of effective teacher practices, simply providing children with access to stimulating materials proves insufficient. The teacher plays a critical role in facilitating effective use of the material and providing children with nurturing guidance to promote learning. One effective opportunity for rich teacher-child interaction described in the mathematics literature, though applicable throughout ECE opportunities, is the “teachable moment,” which occurs when the teacher is able to take advantage of a child’s moment of confusion or cognitive exploration<sup>43</sup>. Capitalizing on this moment allows the teacher to intentionally imbue new learning in the child at a naturally

occurring, precise moment of learning; thus maximizing a child's instinctively driven, and context specific educational experience. The teachable moment is inherently connected to yet another identified best practice of embedding learning within the context of daily activity and play<sup>29,43</sup>. Successfully embedded teaching makes learning an inherent part of daily life, and when accompanied with intentional scaffolding of successively complex material, promotes a child's inherent propensity for mastering new knowledge, and encourages life-long learning.

### ***Student Teaching Opportunities***

In addition to in-depth instruction in working with diverse children and families, foundational understanding of child development, and knowledge of evidence-supported pedagogy, ECE teacher preparation programs must provide newly trained teachers with significant hands-on, student teaching experiences. Teacher reports correspondingly reveal that teachers found student teaching opportunities to have been the most valuable component of preparatory education, and often report wishing they had increased opportunities for hands-on learning<sup>26,46-48</sup>. In a round table discussion of teacher training practices, Frances Degen Horowitz quoted former education editor of the *Christian Science Monitor*, Cynthia Parsons' astute observation that, "teaching is the only profession in which the novice and the super expert have exactly the same responsibilities"(p. 7<sup>22</sup>). Indeed, newly trained teachers are expected to enter the classroom prepared to be effective teachers, an inherent challenge in a field where expertise is highly reliant on experience. This makes providing teachers the opportunity for varied, embedded experiences, within high quality ECE classroom settings, a critical tool for promoting new teacher competence and sense of confidence in the classroom.

### ***Mentorship and Guidance into Practice***

Innovative teacher preparation courses are supporting teacher transition into the work force by providing newly graduated teachers with sustained mentorship into the first year of classroom instruction (see Appendix B for overview of New Mexico and New Jersey's state-level initiatives). Mentorship, a well established best-practice model for professional development (see Professional Development section of this paper), provides new teachers with context specific, directly applied professional guidance that helps novice teachers develop effective teaching practices early in their career. A large number of new teachers leave the field within three years of entering ECE<sup>21,49</sup>. Providing teachers with a scaffolded entry into the profession could serve to improve teacher retention by increasing teacher sense of efficacy, augmenting teacher competence, and reducing stress and teacher burn-out through the provision of direct support and context-specific training.

### **Professional Development**

Ensuring that teachers enter the ECE field prepared to teach is one essential component for providing young children with effective educational experiences, but teacher training does not, and must not, stop upon ECE preparation program exit. Professional development (PD) represents an integral component to quality teaching, and offers teachers the opportunity to continually fine-tune and improve their teaching skills. Findings show that participation in specialized, intensive, multimodal PD improves teacher competency in the area of skill improvement targeted by the PD activity<sup>22,23,25,50</sup>. For example, a meta-analysis examining effects of teacher participation in PD found that specialized trainings (that targeted specific teaching behaviors or practices) resulted in improved teacher pedagogical competency, attitude toward teaching, content knowledge, and skill when compared to participation in more generalized, broad brush trainings<sup>25</sup>.

Additional findings support implementing PD practices that encourage collaboration between teachers, particularly for teachers within an aligned P-3 system<sup>22,23,25</sup>. P-3 teaching teams are shown to enhance teacher knowledge of preceding and subsequent educational experiences, and promote skill development required of children in successive classrooms, thereby increasing child readiness for subsequent grades<sup>13,22,23</sup>. Collaborative teams also offer collegial support and knowledge sharing in an informal manner, as well as an opportunity for teacher reflection upon newly implemented practices or challenging classroom circumstances<sup>22,23</sup>. Teacher reflection and use of formative curriculum-based assessment (or assessment embedded within coursework, and used to identify child progress, strengths, and areas for improvement) represent additional teaching practices that influence effective PD implementation and support on-going teacher skill development<sup>23</sup>.

Not only has research provided evidence supporting the provision of targeted PD and collaborative opportunities, but examination of PD has also shown that teachers benefit from trainings that are implemented over a sustained period of time<sup>11,12,25,42,50,51</sup>. One-off workshops or trainings are consistently found to have little to no effects on teacher practices<sup>25,50,51</sup>. Conversely, PD models that offer teacher training over an elongated time span show significantly greater impacts on modifying teaching behaviors and child outcomes. One increasingly implemented PD model in ECE is a two-pronged approach to PD, characterized by an initial workshop training session, accompanied by continued consultation and mentorship (via web-based video conferencing or in-person observation and coaching), lasting at least six months. Teachers who receive continued PD support consistently report that the newly learned practices are more beneficial for meeting student needs, more easily integrated in current classroom practice, and find more satisfaction in using the materials, than teachers who receive the workshop training

alone<sup>52</sup>. The improved efficacy of continued PD support may function as a product of deeper understanding of training content, as well as increased translation of new knowledge to specific classroom contexts; therefore, improving use and implementation of materials for class instruction. Research shows that effective PD is directly applicable to classroom experiences, as opposed to a non-specific context, and the added support of a classroom consultant helps meet needs of teachers and students within targeted classroom contexts<sup>25,50</sup>. Additionally, other research has shown that simply implementing newly learned curricula or teaching practices with fidelity to the original model is insufficient for promoting quality classroom instruction<sup>32</sup>. Consultants add increased dimension to program integration in the classroom, and ensure both fidelity and quality of new practices by guiding PD implementation and directly supporting teacher behaviors above simple replication of previously proven practices.

Furthermore, given the emerging body of evidence indicating the primary influence of the teacher-child relationship as a central mechanism for child learning, educators are best served by PD that effectively imparts methods for improving process features of their teaching skills<sup>32</sup>. Teacher-child relationship and classroom emotional tone constitute two process components that offer ideal targets for PD implementation. Because both of these process features are largely related to social-emotional skill development, many researchers have found that well-developed social-emotional competency building PD effectively impact both teacher-child relationships as well as classroom emotional tone, as previously discussed in the Social-Emotional competency curricula section.

### ***Future Directions and Next Steps***

The discussion above highlights practices that support effective ECE instruction by promoting positive child development through comprehensive teacher preparation, equipping

teachers with tools for implementing successful pedagogy, and employing beneficial of aspects PD experiences. The body of work looking to identify effective teacher preparation, curriculum delivery, and PD has resulted in a growing collection of known practices that work in ECE, and offers future directions for further inquiry and investment. One area offering promising potential lies in the development and integration of technologies that support teaching into practice.

Touched upon in discussion of effective PD practices, increasing numbers of PD programs are capitalizing upon the use of web-based interface (e.g. web conferencing and video observation) to enhance teacher quality<sup>12,52,53</sup>. Technological advances in social networking and increasingly fluid electronic interactions offer an ideal low-cost, yet highly effective, means for direct communication with teachers, in many cases transcending geographic, logistical, and budgetary barriers. The MyTeachingPartner (MTP) program is one promising example of implementation of web-based coaching that provides individualized, class specific support to teachers in order to augment implementation of the MTP literacy instruction intervention. MTP is noteworthy for its' observed positive impact on literacy teaching methods and child outcomes, as well as its' promotion of positive teacher-child relationships<sup>12</sup>. The National Center for Research on Early Childhood Education (NCRECE), based within the University of Virginia's Center for Advanced Study of Teaching and Learning (CASTL), and home of MTP research, is a notable leader in exploring innovative use of technology for bolstering teacher quality and optimal child learning<sup>41</sup>.

Not only is the need to utilize new technologies an important area for growth in promoting positive teaching strategies, but development of valid assessment tools that measure quality of teacher performance and classroom emotional tone to help guide and improve instruction, also represents a critical opportunity for improvement in current practice. Promising

developments for measuring process features of the classroom environment and teacher practice are also emerging from NCRECE through the Classroom Assessment Scoring System (CLASS) scale<sup>41</sup>. The CLASS scale measures the quality of process features by measuring “teachers’ emotional, organizational, and instructional interactions with students in the classroom”<sup>41</sup>, and can offer teachers an objective means to analyze their teaching competencies. An additional consideration for valid assessment is alignment with standards. Coordination of assessment benchmarks with established developmentally appropriate standards engender measurement that is purposeful and directly applicable to meeting child developmental needs<sup>40,54</sup>.

Additionally, next steps in developing effective teaching practices must also take into consideration the evolving understanding of child cognition and neurological development. Observed relationships between social-emotional competence and academic skill may gain even greater significance as a result of increased understanding of the neural developmental mechanisms of executive function and behavioral self-regulation in children. This offers a potential opportunity for effective support of child outcomes through the translation of research into classroom practice. The alignment of uncovered neurological developmental patterns with actual classroom practices could revise traditional conceptualizations of developmentally appropriate practice and child cognition, yielding a more accurate and sophisticated knowledge of what children are truly capable of achieving. Capitalizing upon development of executive function and self-regulation in ECE can offer young children with lasting neural foundations that promote long-term learning above rote academic instruction; and support improved process classroom feature by decreasing behavioral disruptions, and increasing opportunity for enriching interactions.

In addition to establishing a better understanding of how executive function and self-regulation skills are developed, teacher training research would be well informed through examination of teacher-child dyadic interactions. Emerging awareness of the role that responsive and warm teacher bonds hold in predicting child academic and social-emotional success offers insight into the impact of proximal processes within the classroom environment. To date, however, this perspective fails to account for the unique contribution of the child to the teacher-child interaction. Investigation of child social-emotional competence consistently identifies negative developmental trajectories associated between poor child social-emotional regulation and academic and lifetime outcomes. Furthermore, teacher report measures of child social-emotional skill regularly report children with less developed social-emotional competence as harder to reach<sup>31</sup>. These observations make examination of the child's contribution to the teacher-child relationship a central aspect of the classroom environment that is yet to be explored among the literature. Developing a systematic understanding of child contribution to the teacher-child dyadic relationship (as long ago identified in the parent-child relationship by attachment theorists) will further provide teachers with comprehensive understanding of the cumulative nature of influences at play in the classroom, and promote more sensitive and responsive teaching practices.

Similarly, taking into account the vital contributions families make toward child development and academic success will further enhance positive impacts resulting from participation in ECE. Integrating parent participation into children's schooling encourages families to engage in academic activities at home, and fosters a more fluid educational experience for young children. The supportive power offered through family engagement in schooling is increasingly recognized through the development of evidence-based intervention

models that include parent education components in intervention design, as seen in the Incredible Years social-emotional curriculum<sup>13</sup>. The additive benefits of a collaborative home-school approach to education allows children to experience learning as an continuous life experience, rather than a discrete event that occurs only with the confines of the classroom. Embedding learning across environmental contexts encourages dedication to learning and school engagement, two protective factors that support educational success<sup>41</sup>. Additionally, parent engagement in schooling offers an essential supportive factor that contributes to child academic achievement, and helps foster a greater sense of community and investment within the classroom by providing children with a comprehensive net of support<sup>41</sup>.

Lastly, the practices discussed above offer insight into concrete pathways for promoting teacher quality in ECE classrooms. This discussion explores the varied challenges and supportive practices that are shown to promote effective teaching, and presents the remarkable skill required of teachers. Quality teachers respond sensitively to their students, with specialized knowledge of individual needs, all within flexible classroom structures that encourage embedded learning and stimulating interaction. Being an effective teacher requires considerable commitment and investment, and therefore, requires considerable compensation. A consistently reported central concern for newly trained ECE teachers' lies in investing in costly preparation, only to graduate to dismally low ECE teacher salaries. Analysis of college educated female salaries in the United States found that ECE teachers earn less than 50% what equally educated female peers make in other fields<sup>21</sup>. Efforts to provide ECE teachers with appropriate salaries and promote participation in teacher training through scholarships and loan forgiveness programs, offer salient methods for attracting, and retaining, teachers in ECE. While recruiting and training effective teachers offers a means to providing children with improved ECE outcomes, retention relies

upon providing teachers with compensation that reflects the societal importance of their work, and collectively comprehensive investment in successful ECE practices overall.

### **Appendix A: Theoretical Underpinnings**

The bioecological model of child development posits that child development occurs through the child's interaction with his or her environment<sup>55</sup>. Children are embedded within an ecology of influences, ranging from very distal components (such as historical context and national government) to immediate, direct interactions (comprised of relationships with parents, siblings, and teachers). Each sphere of influence converges upon the child, shaping his or her experiences, and thusly, his or her developmental trajectory. Bronfenbrenner calls special attention to the role of *proximal processes*, or “enduring forms of interaction in the immediate environment... [that] occur on a fairly regular basis over extended periods of time” (p. 5<sup>55</sup>). Children who have access to rich, stimulating environments and warm responsive relationships with caregivers are more likely to display greater developmental success when compared with children who are exposed to impoverished environments and insensitive caregiving. According to the bioecological model, observed differential developmental trajectories stem from differing availability and quality of proximal processes, as well as the cumulative influence of environmental factors, such as social and economic influences<sup>55</sup>. The observed significance of responsive teacher-child interactions and positive emotional climates replicate Bronfenbrenner's bioecological model by displaying the increased power of proximal processes in promoting positive child developmental success, when compared to less impacting distal factors, such as teacher credentials<sup>12</sup>.

## **Appendix B: Innovative Teacher Training Practices<sup>21, 24</sup>**

### **New Mexico**

#### **“Comprehensive Professional Development System”**

- Preparation and on-going professional development practices unified through:
  - Shared core content between higher education and in-service practice
  - Seven areas of competency
    - Child development
    - Health and safety
    - Family and community collaboration
    - Developmentally appropriate instruction
    - Learning environment and curriculum implementation
    - Child and program assessment
    - Professionalism
  - Systematic articulation between associate and bachelor degree requirements and common course catalogues among higher education institutions make transfers between institutions more seamless
  - State-wide network of technical assistance and training support which is responsible for entry-level training of home- and center-based caregivers
  - “Career Lattice” delineates integrated professional progress from associate degree through graduate training, allowing educators to continue higher education with greater ease

### **New Jersey**

Response to “Abbott” decision (1998), which mandated state-wide provision of evidence-based practices in ECE classrooms

- Newly created Division of Early Childhood Education within Department of Education
- Higher Education changes
  - Development of 4-year P-3 specialization BA, distinct from K-5 specialization
  - Alternate route training (non-4 year degree or continuing education)
  - Post-baccalaureate P-3 endorsement
  - Funding
    - Moneys directly provided to schools for program development costs
    - State-funded scholarships to pay teachers’ tuition for attaining advanced training
  - Comprehensive course content including material across P-3 continuum
  - 3 required pre-service practicum or student-teaching placement opportunities
- Comprehensive Professional Development
  - State-wide early childhood specialists provide mentorship and program oversight
  - Additional early childhood administrative technical assistance teams

**Appendix C:  
Professional Development Trials**

<b>Trial</b>	<b>QUINCE—The Quality Interventions for Early Care and Education</b>
<b>Objective</b>	Multi-state study examining effectiveness of two professional development programs that provide individualized consultation for home- and center-based caregivers.
<b>Location</b>	<u>Partnerships for Inclusion (PFI) consultation model:</u> 2-5 agencies in each: California, Iowa, Minnesota, Nebraska, and North Carolina <u>Rameys Immersion Training for Excellence (RITE) consultation model:</u> 2-5 agencies in Mississippi
<b>Timeline</b>	September 2004-September 2007
<b>Website</b>	<a href="http://www.fpg.unc.edu/~QUINCE/index.cfm">http://www.fpg.unc.edu/~QUINCE/index.cfm</a>

<b>Trial</b>	<b>MCRD- Foundations of Learning Project</b>
<b>Objective</b>	Improve child social-emotional regulation and teacher classroom management and behavioral redirection skills through two-pronged intervention model which provides teachers with intensive workshop training, and on-going, in class consultation support from mental health specialists.
<b>Location</b>	51 classrooms in Newark, NJ 40 classrooms in Chicago, IL
<b>Timeline</b>	2007-2009
<b>Website</b>	<a href="http://www.mdrc.org/project_11_78.html">www.mdrc.org/project_11_78.html</a>

<b>Trial</b>	<b>NCRECE- CHATT- Children and Teachers Together</b>
<b>Objective</b>	Randomized control trial examining effects of providing ECE teachers with training and continued consultation support for implementation of the Hanen Centre method (Hanen.org), a model that encourages positive teacher-child communication.
<b>Location</b>	60 at-risk pre-kindergarten classrooms in Ohio
<b>Timeline</b>	Not specified, but currently underway
<b>Website</b>	<a href="http://www.virginia.edu/vpr/CASTL/?q=node/23">http://www.virginia.edu/vpr/CASTL/?q=node/23</a>

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