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# THE BENEFITS OF EARLY CHILDHOOD EDUCATION CAN PERSIST IN THE LONG RUN

*Robert C. Carr*

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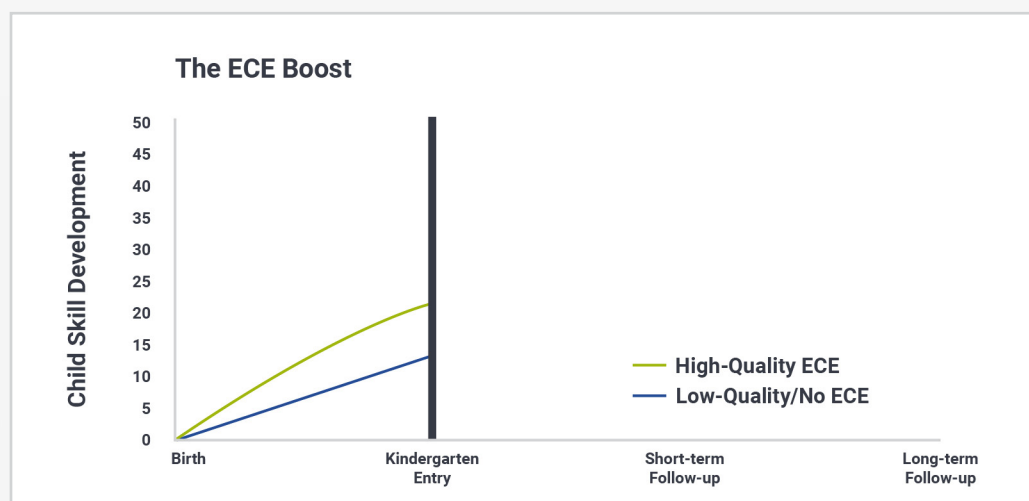
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Participating in a high-quality early childhood education (ECE) program can equip children with foundational skills and dispositions for learning.<sup>1,2</sup> However, research following children into elementary school shows mixed long-term impacts—including evidence that the benefits of ECE can quickly diminish after children transition to kindergarten as well as evidence that the benefits can persist into later grades.<sup>1,2</sup> Is it possible to reconcile these seemingly contradictory findings? This brief examines how the benefits of high-quality ECE might simultaneously diminish and persist in the long run. Strategies are then discussed to sustain the impacts of ECE during elementary school.

### THE ECE BOOST

The ECE boost can be characterized by children demonstrating a higher rate of skill development while participating in a high-quality ECE program (see Figure 1). This developmental boost represents a greater rate of skill development compared to the rate children would have otherwise demonstrated while participating in a low-quality ECE program or no ECE program at all. Moreover, the ECE boost will enable children to enter kindergarten having attained a higher skill level than they would have otherwise attained without a high-quality ECE experience. Findings from a wide range of ECE effectiveness studies suggest that the ECE boost can range from one third of a year of additional learning to as much as a full year of additional learning.<sup>1</sup>

FIGURE 1



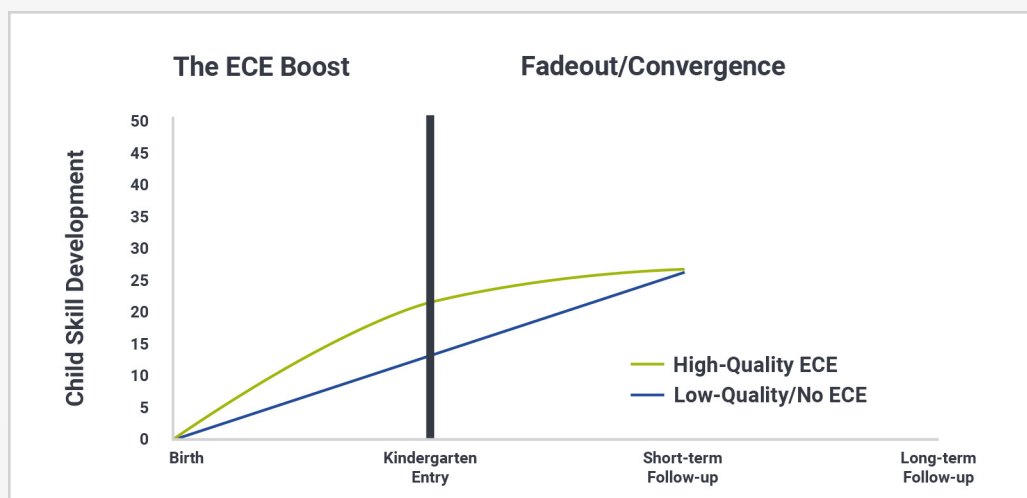
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### FADEOUT/CONVERGENCE

While high-quality ECE programs can promote foundational skills and dispositions for learning, children's acquisition of foundational skills will naturally plateau after they have mastered those skills. Therefore, the impact of high-quality ECE on foundational skills should be expected to diminish during elementary school (as illustrated by the green line on the right-hand side of Figure 2). This phenomenon can be characterized as a process of "fadeout" or deceleration in the rate of skill development children demonstrate after kindergarten entry.<sup>3</sup> Simultaneously, the skill level of children without high-quality ECE can "catch-up" or "converge" with the skill level of children with high-quality ECE.<sup>3</sup>

FIGURE 2



### SKILLS BEGET SKILLS

Upon reaching a point of mastery in learning foundational skills, children will be inclined to progress on to learning more advanced skills. This is described as a process of skills beget skills, in which skills learned during an earlier stage of development enhance the opportunity for children to learn more advanced skills at later stages of development.<sup>4</sup> Examining children's emergent literacy skill development provides a concrete example of how foundational skills can beget more advanced skills.

Children typically acquire knowledge about the names and sounds of letters in the alphabet before learning how to string those letters together into words and sentences.<sup>5,6</sup> Learning the letter names and sounds earlier in development can enable children to quickly move on to learning more advanced literacy skills in a subsequent phase of development. Indeed, in a recent longitudinal study, children who learned to name the 26 letters in the English alphabet during preschool rather than kindergarten were able to read more words at the end of kindergarten.<sup>7</sup> This was true even though most children in the study eventually learned to name all 26 letters by the end of kindergarten.

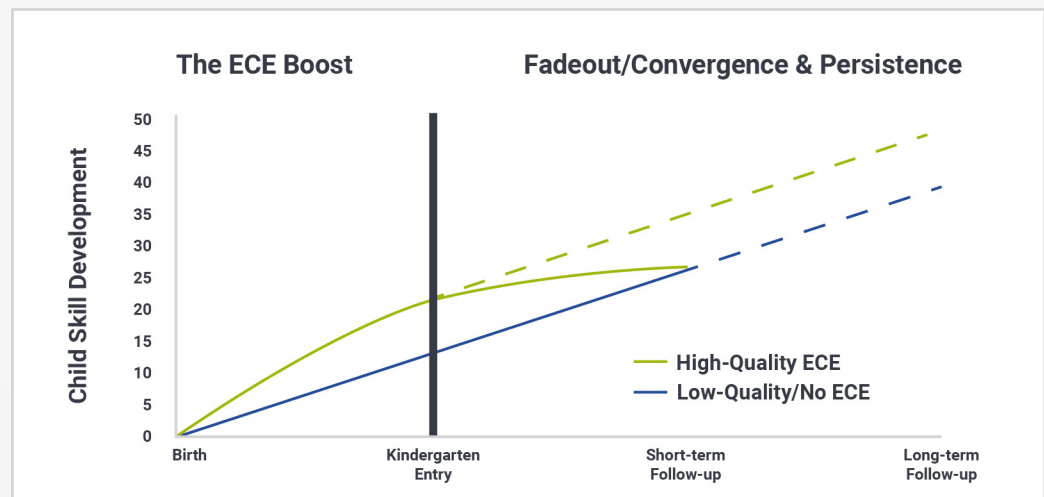
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### THE COEXISTENCE OF FADEOUT/CONVERGENCE AND PERSISTENCE

The benefits of ECE may persist over time through a process of skills beget skills if children with high-quality ECE can progress on to learning more advanced skills at an earlier stage of development compared to children without high-quality ECE (illustrated by the transition from solid to dashed lines in Figure 3). Under these conditions, the ECE boost can persist in the long-term as children continue to maintain that higher, overall skill advantage they had attained at kindergarten entry. Therefore, **fadeout or convergence in the ECE boost to foundational skill development can “coexist” with the persistent benefit of ECE for more advanced skill development.**<sup>8</sup>

FIGURE 3



#### THE HEAD START EXAMPLE

A robust body of evidence indicates that children’s participation in high-quality ECE programs can boost their learning of foundational skills, such as letter knowledge.<sup>1,2</sup> Some evidence also suggests that ECE program effects on children’s foundational skills can diminish, while effects on more advanced skills can persist. This was evident in the national randomized study of the Head Start preschool program—the Head Start Impact Study.<sup>9</sup> In this study, Head Start program participants were found to outperform non-participants on a wide range of emergent literacy skill measures at the end of preschool (e.g., letter naming & letter-word identification). However, these differences related to emergent literacy skills disappeared by the end of the kindergarten year. Still, Head Start program participants were later found to outperform non-participants on measures of advanced literacy skills in first and third grade (i.e., oral comprehension & reading). It is likely that the persistent benefit of ECE in this manner depends on the quality of the classroom environment in the early elementary grades, and the opportunities these classrooms afford children to learn increasingly complex skills.



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### PERSISTENCE MAY DEPEND ON HIGH-QUALITY ELEMENTARY SCHOOLS

High-quality ECE programming is often geared toward promoting children's development of foundational skills and dispositions for learning. The benefits of high-quality ECE may persist in the long-term through a process of skills begets skills, by which children progress from learning foundational skills during preschool to learning more advanced skills during elementary school. However, this process may depend on the quality of educational inputs and opportunities during elementary school. High-quality elementary school environments may be needed to promote children's development of more advanced skills and sustain the ECE boost. Without high-quality school environments, children's development may be stalled in schools that provide low-quality instruction or redundant instruction related to those foundational skills that children already mastered in preschool.<sup>10</sup> Indeed, the sustaining environments hypothesis suggests that ECE program impacts will not persist in the long run "unless they are accompanied by subsequent investments in sufficiently high-quality schools."<sup>11</sup> Recent studies offer some evidence to support this hypothesis.<sup>12-16</sup> However, what remains unclear is exactly what type of educational inputs in elementary school will sustain the benefits of high-quality ECE.<sup>17</sup> Nonetheless, there are many promising strategies to consider.

### STRATEGIES TO SUSTAIN THE IMPACTS OF ECE DURING ELEMENTARY SCHOOL

01. Kindergarten appears to be a particularly salient period in which fadeout/convergence can occur.<sup>18</sup> Therefore, focusing on the scope, sequence, and quality of educational inputs children receive during the kindergarten year may be necessary for the benefits of high-quality ECE to persist in the long run.
02. The benefits of ECE may persist in classroom contexts in which teachers provide differentiated, tiered instruction to meet the individual needs of diverse learners who enter kindergarten with varying skill levels. The average kindergarten classroom includes children with skill levels that vary widely from one child to the next. A child who participated in a high-quality ECE program may not necessarily be the child with the most advanced skills in the classroom, but their skillset would be greater than it otherwise would have been without high-quality ECE. When teachers have the resources and support to target their instruction to the needs of children across skills levels, all children may continue learning more advanced skills that extend beyond the skillset they began kindergarten with.
03. All children may benefit from a classroom context in elementary school where teachers interact with children in ways that are cognitively stimulating and emotionally supportive. However, children with a high-quality ECE experience may derive greater benefit from experiencing continuity in high-quality interactions with teachers during elementary school, because they may have grown accustomed to high-quality interactions during preschool.<sup>12</sup>
04. The benefits of ECE may be more likely to persist in a policy context in which educational systems promote the alignment of content standards, curriculum, and classroom quality across preschool and elementary school.<sup>19</sup> Such alignment will require cooperation and collaboration between ECE programs (Head Start, state funded pre-K, Title I preschool, other community-based providers) and local education agencies, as well as state and federal policies to incentivize this work. To date, only a portion of states are working to create aligned systems ([www.nationalp-3center.org/map](http://www.nationalp-3center.org/map)).

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## ACKNOWLEDGEMENTS

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