

Misguided metrics underestimate the intelligence of early learners.



## CHILD DEVELOPMENT

## The preschool paradox

It's time to rethink our approach to early education

By Kathy Hirsh-Pasek<sup>1,2\*</sup> and Roberta Michnick Golinkoff<sup>3</sup>

**T**he *Little Prince* opens with a 6-year-old narrator who proudly drew a boa constrictor that had swallowed an elephant (1). Disheartened that adults think his masterpiece is a picture of a hat, he quips, “Grown-ups never understand anything by themselves.”

In her new book, *The Importance of Being Little*, Erika Christakis comes to the same conclusion. Her “preschool paradox” suggests a misalignment between what we offer young children and what they really need. If children have “limitless capacity to learn in all environments,” she writes, “why should we settle for unimaginative goals ... like being able to identify triangles and squares, or recalling the names of colors and seasons?”

This superbly written book takes us inside the culture of current U.S. preschools and eloquently exposes parental fears that without academic “strategies” and “toolkits,” their little Einsteins might fall woefully behind. Society’s response has been to trade emotional grounding and strong language skills known to support learning for assembly-line schooling that teaches children isolated factoids.

Supported by a rich scientific literature, Christakis illustrates why a “factory model” of education that turns teaching into “car-

nival barking” will not serve children well. In these contexts, learning is shallow. A child can be trained to answer “four” when a teacher asks “What is three plus one?” but rote memorization does not mean the child understands what “four” means. So, too, our laser focus on letter identification and letter-sound correspondence as the sine qua non of early reading masks the fact that language and general knowledge skills are the foundation for reading readiness (2, 3). Christakis argues that we must endorse an early education model that has strong learning goals but also encourages a “flexibility of mind, not [merely] a command of facts.”

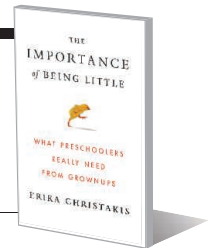
*The Importance of Being Little* is not a scientific book per se, and Christakis’s arguments for constructivist, child-centered preschools and home environments are not new. However, her years of well-honed experience and breadth of knowledge about the underlying science lend weight to the growing belief that we must resuscitate childhood and encourage learning through discovery—à la Reggio Emilia—and that we must design preschools that nurture the development of close adult-child relationships and creativity.

Although the book speaks to how we might attain high-quality preschool education, it also challenges scientists to confront why findings in child development are often ignored in educational practice.

First, despite the fact that education and psychology are closely related, experts in these fields often fail to consult one another. Research in the relatively new science of learning is designed to rectify this gap.

### The Importance of Being Little What Preschoolers Really Need from Grownups

Erika Christakis  
Viking, 2016. 400 pp.



Second, scientists typically look for gaps within, rather than consensus across, the literature. This can cause the appearance of disagreement even where none exists. Scientists largely agree on what needs to be learned and on how children best learn. For example, nearly all would contend that a narrow focus on reading and mathematics to the exclusion of emotion regulation, critical thinking, and grit is a mistake. All would also likely agree that learning is optimized when children are active participants in inquiry and the material is integrated and contextualized, rather than spoon-fed and compartmentalized.

There is also large consensus about what foundational knowledge is required for children to master particular topic areas (4). Learning math, for example, requires attention to geometric shapes and patterns, as well as an understanding of the number line—components that are scantily covered in preschool classrooms. Focusing on areas of consensus across a well-established literature allows scientists to develop broad principles of learning that can be used in preschools of varying educational philosophies.

Lastly, scientists often recoil when contacted by journalists rather than providing “edible science” that is accessible, digestible, and usable. It is no wonder then that educators and the public know little about areas of scientific consensus. Such a gap leaves the public vulnerable to inaccurate claims like “Your baby can read” and promises of “brain-based” education.

*The Importance of Being Little* invites readers to sample the science of learning and helps close the gap between what we know and what we do. Scientists in particular might see the book as a call to action to ensure better alignment between psychological scientists and educators. In the end, books like this bring us all closer to seeing why a drawing of a snake that swallows an elephant is not a hat.

## REFERENCES

1. A. Saint-Exupéry, *The Little Prince* (Harcourt, New York, 1943).
2. D. Dickinson, R. M. Golinkoff, K. Hirsh-Pasek, *Educational Researcher* 4, 305 (2010).
3. S. B. Neuman, E. H. Newman, J. Dwyer, *Reading Research Quarterly* 46, 249 (2011).
4. R. Golinkoff, K. Hirsh-Pasek, *Becoming Brilliant: What Science Tells Us About Raising Successful Children* (APA Press, New York, 2016).

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