

The Secret Power of the Children's Picture Book

Even infants get profound cognitive and behavioral benefits from sharing a vivid story.



By *Meghan Cox Gurdon*

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Millions of people—perhaps you’re one of them—have watched viral videos of a Scottish granny collapsing in laughter while she reads to a baby. Comfortable on a sofa with her grandson, Janice Clark keeps cracking up as she tries to read “The Wonky Donkey” and, in a second video recorded a few months later, “I Need a New Bum.”

Her raspy burr sounds great, and she’s fun to watch, but the real genius of the scene is what’s happening to the baby. Tucked beside her, he’s totally enthralled by the book in

her hands. In the second video especially, because he's older, you can see his eyes tracking the illustrations, widening in amazement each time that she turns the page. He's guileless, unaware of the camera. He has eyes only for the pictures in the book.

What's happening to that baby is both obvious and a secret marvel. A grandmother is weeping with laughter as she reads a story, and her grandson is drinking it all in—that's obvious. The marvel is hidden inside the child's developing brain. There, the sound of her voice, the warmth of her nearness and, crucially, the sight of illustrations that stay still and allow him to gaze at will, all have the combined effect of engaging his deep cognitive networks.

Unbeknown to him and invisible to the viewer, there is connection and synchronization among the different domains of his brain: the cerebellum, the coral-shaped place at the base of the skull that's believed to support skill refinement; the default mode network, which is involved with internally directed processes such as introspection, creativity and self-awareness; the visual imagery network, which involves higher-order visual and memory areas and is the brain's means of seeing pictures in the mind's eye; the semantic network, which is how the brain extracts the meaning of language; and the visual perception network, which supports the processing of visual stimuli.

And it is all happening exactly when it needs to happen, which is early. In the first year of life, an infant's brain doubles in size. By his second birthday, synapses are forming for language and many other higher cognitive functions. And by the time he's blowing out five candles on his birthday cake, today's viral-video infant celebrity will have passed through stages of development involving language, emotional control, vision, hearing and habitual ways of responding. The early experiences he's having, and the wiring and firing of neurons they produce, will help to create the architecture of his mind and lay the pathways for his future thought and imagination.

Leaving one particular Scottish baby aside, it is worth considering what cognitive and behavioral research can tell us about a baby's gaze and the dynamic power of the picture book. Clinicians at the Cincinnati Children's Reading and Literacy Discovery Center

have been using MRI scanners to study these questions, and they've come up with a suitably fairy-tale phrase: The Goldilocks Effect.

For a small 2018 study involving 27 children around the age of 4, the researchers watched how the young brains responded to different stimuli. As with the first bowl of porridge that Goldilocks finds in the house of the Three Bears, the sound of the storytelling voice on its own seemed to be “too cold” to get the children’s brain networks to fully engage. Like the second bowl that Goldilocks samples, animation of the sort that children might see on a TV screen or tablet was “too hot.” There is just too much going on, too quickly, for the children to be able to participate in what they were seeing. Small children’s brains have no difficulty registering bright, fast-moving images, as experience teaches and MRI scanning confirms, but the giddy shock and awe of animation doesn’t give them time to exercise their deeper cognitive faculties.

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Just as Goldilocks sighs with relief when she takes a spoonful from the third bowl of porridge and finds that it is “just right,” so a small child can relax into the experience of being read a picture book. There is a bit of pleasurable challenge in making sense of what he’s seeing and hearing. There is time to reflect on the story and to see its reverberations in his own life—a transaction that may be as simple as the flash of making a connection between a real donkey he once saw with the “honky tonky, winky wonky donkey” of Craig Smith’s picture book. The collaborative engagement that a child brings to the experience is so vital and productive that reading aloud “stimulates optimal patterns of brain development,” as a 2014 paper from the American Academy of Pediatrics put it, strengthening the neural connections that will enable him to process more difficult and complex stories as he gets older.

Much of the hidden magic of reading aloud has to do with those curious eyes and that devouring gaze. Looking at a book with an adult, a child increases his capacity for “joint attention,” noticing what others see and following their gaze. This phenomenon has a remarkable tempering power in children. It encourages the development of executive

function, an array of skills that includes the ability to remember details and to pay attention. Children “learn to naturally regulate their attention when they are focusing on a task, they find interesting in a context that is nurturing, warm and responsive,” as Vanderbilt University’s David Dickenson and colleagues put it in a paper summarizing the rich developmental value of reading aloud.

By contrast, fast-paced TV shows have been shown to impair executive function in young children after as little as nine minutes of viewing. Nor is that the only tech-related downside. Babies look at adults to see where we’re looking, so if we’re glued to our electronic devices, that’s what will draw their gaze too. What they see may not be what we want them to see. As the psychologist Catherine Steiner-Adair has written: “Babies are often distressed when they look to their parent for a reassuring connection and discover the parent is distracted or uninterested. Studies show that they are especially perturbed by a mother’s ‘flat’ or emotionless expression, something we might once have associated with a depressive caregiver but which now is eerily similar to the expressionless face we adopt when we stare down to text, stare away as we talk on our phones or stare into a screen as we go online.”

Given that parents and grandparents are going to spend some time using devices, it is all the more important to balance it out with times of intense engagement with babies and toddlers. Glancing down to catch a baby’s eye while reading a story, meeting a child’s inquiring gaze—these simple acts bring the child’s brain waves into greater synchronization with the adult’s, according to recent research at Cambridge University. Babies in the study made more vocalizations when they were in sync, suggestive of an early head-start in language. Reading picture books to them thus has a double effect: It removes the negative of extra screen time while adding a terrific positive in the form of skill- and brain-building effects. It’s a perfect way to ensure that babies and young children get what their eyes so benefit from seeing wonderful pictures in books and the wonderful human face.