# Codie Blocks: The Next Frontier in Early Childhood Literacy

*By Don Moody, Creator of WordWorld*

*As the creator of WordWorld, a beloved PBS Kids series funded by the U.S. Department of Education, I have spent my career focused on helping children learn to read. WordWorld was grounded in rigorous academic research, including multiple Department of Education efficacy studies, which showed that children who watched the series made significant gains in early literacy skills. These included letter recognition, phonemic awareness, word formation, and vocabulary development.*

*Now, with the launch of Codie Blocks, I am building on that legacy to explore an even deeper connection between early literacy and the cognitive foundations that support it. Codie Blocks is a pre-reading, pre-coding experience designed for children ages 3-6. It uses physical manipulatives, a story-driven digital platform, and a character-led narrative (Mia & Codie) to engage children in symbolic reasoning, sequencing, expressive language, and creative storytelling.*

## From Words to Code: A Shared Cognitive Pathway

Reading and coding may seem like distinct disciplines, but they share a fundamental cognitive pathway: both require children to understand and manipulate symbols that represent meaning. In reading, letters form words that form stories. In coding, commands form sequences that drive outcomes.[1][2]

*Codie Blocks* introduces children to coding through hands-on, block-based play—an approach that taps into the same skills children need to become strong readers: pattern recognition, sequential thinking, symbolic abstraction, and cause-and-effect reasoning. Research has shown that these are not just “nice to have” skills. They are foundational for literacy. As children engage with *Codie Blocks*, they are practicing the very skills that will help them understand how letters work together to form words and how those words form meaning.[3]

## Pre-Reading Skills Strengthened by Codie Blocks

1. **Sequencing and Narrative Structure**
   Children arrange physical blocks to create cause-effect outcomes. This mirrors how stories have beginnings, middles, and ends—a structure essential for reading comprehension.[4]

2. **Symbolic Thinking**
   Each block represents a function or action, much like each letter or word represents a sound or meaning. Children learn that abstract symbols (blocks or letters) can drive real-world outcomes.[5]

3. **Oral Language Development**
   The *Mia & Codie* stories encourage children to describe their actions, predict outcomes, and explain results. This verbal expression supports vocabulary growth and syntactic awareness.[6]

4. **Problem Solving and Iteration**
   Just like decoding unfamiliar words, children test and revise their block arrangements to get the desired result. This builds persistence and confidence in navigating symbolic systems.[3]

## Why Start Younger? The 30 Million Word Gap and Computational Thinking

The landmark study by Hart & Risley (1995) revealed a stark truth: by the age of 4, children from lower-income families have heard 30 million fewer words than their peers from higher-income families.[7] This "word gap" significantly impacts language development and later reading success.

While we continue to advocate for rich language environments, *Codie Blocks* offers an additional tool: a way to build **cognitive infrastructure for literacy** even before reading begins.

Computational thinking—once thought of as a STEM skill—is increasingly recognized as a literacy of its own.[2] When children begin developing these skills early, they gain confidence in symbolic representation, logical reasoning, and storytelling—all essential for future academic success.

## Follow-Up Research Supporting Hart & Risley

Subsequent studies have reinforced the importance of early language exposure and added nuance to the original findings:

- **Weisleder & Fernald (2013)** found that the amount of child-directed speech heard in infancy significantly predicted vocabulary and processing speed at age two.[8]
- **Rowe (2012)** emphasized that the *quality* of interactions (e.g., turn-taking, abstract vocabulary) is more predictive of later success than word count alone.[9]
- **Romeo et al. (2018)** used brain imaging to show that conversational turns correlate with increased activity in Broca's area, a region linked to language processing.[10]
- **Gilkerson et al. (2018)** demonstrated that conversational turns at 18-24 months predicted IQ, language, and executive function outcomes in middle childhood.[11]

These findings further validate *Codie Blocks'* approach to engaging children in interactive, symbolic, and language-rich environments that foster early literacy development.

---

## Conclusion: Literacy, Reimagined

*Codie Blocks* is not a coding toy. It is a **pre-reading literacy tool** disguised as play. It builds the invisible architecture of reading by giving children a way to experiment with sequence, structure, and symbolism long before they can decode text.

As we look to the future of early childhood education, we must consider tools that build literacy from the ground up—not just through letters and phonics, but through logic, language, and imagination. Just as *WordWorld* turned words into characters, *Codie Blocks* turns code into a story—and every child into a thinker, speaker, and eventually, a reader.

*Don Moody is a three-time Emmy Award-winning producer and the creator of WordWorld and Codie Blocks. His work in children's media has been funded by the U.S. Department of Education, PBS, and leading academic institutions.*

---

# Endnotes


1. National Early Literacy Panel. (2008). Developing Early Literacy: Report of the National Early Literacy Panel. National Institute for Literacy.
2. Wing, J. M. (2006). Computational Thinking. Communications of the ACM, 49(3), 33–35.
3. Bers, M. U. (2018). Coding as a Playground: Programming and Computational Thinking in the Early Childhood Classroom. Routledge.
4. Hirsh-Pasek, K., et al. (2015). Putting Education in "Educational" Apps: Lessons From the Science of Learning. Psychological Science in the Public Interest, 16(1), 3-34.
5. Resnick, M., et al. (2009). Scratch: Programming for All. Communications of the ACM, 52(11), 60-67.
6. Neuman, S. B., & Wright, T. S. (2014). The Magic of Words: Teaching Vocabulary in the Early Childhood Classroom. American Educator, 38(2), 4-13.
7. Hart, B., & Risley, T. R. (1995). Meaningful Differences in the Everyday Experience of Young American Children. Paul H. Brookes Publishing Co.
8. Weisleder, A., & Fernald, A. (2013). Talking to children matters: Early language experience strengthens processing and builds vocabulary. Psychological Science, 24(11), 2143-2152.
9. Rowe, M. L. (2012). A longitudinal investigation of the role of quantity and quality of child-directed speech in vocabulary development. Child Development, 83(5), 1762-1774.
10. Romeo, R. R., Leonard, J. A., et al. (2018). Language exposure relates to structural neural connectivity in childhood. Journal of Neuroscience, 38(36), 7870-7877.
11. Gilkerson, J., Richards, J. A., et al. (2018). A Research-Based Brief on the Impact of Early Language Experiences on School Readiness. Pediatrics, 143(1), e20182531.