Annotated Bibliography on the Science of Reading for Librarians

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Purpose of This Handout

This annotated bibliography was compiled to support librarians in understanding the diverse perspectives within the ongoing Science of Reading (SoR) discussion. As literacy advocates and community educators, librarians play a critical role in helping parents, teachers, and students navigate the complex and often politicized debates surrounding how children learn to read. This handout highlights research, commentary, and analysis from scholars, journalists, and policymakers. It is designed to provide balanced, research-based insights and to serve as a professional resource for programming, collection development, and collaboration with educators.

Understanding the Science of Reading

Scholars and literacy experts generally concur that learning to read requires the development of five interrelated foundational components:

- phonemic awareness: the ability to identify and manipulate individual sounds within spoken words;
- phonics: the understanding of the systematic relationships between sounds and their corresponding letters;
- fluency: the capacity to read with accuracy, appropriate rate, and expression;
- vocabulary: the breadth and depth of word knowledge and usage; and
- comprehension: the ability to construct meaning from text and integrate ideas within and across readings.

The ongoing challenge within literacy education lies not in defining these essential components but in determining the most effective means of supporting children's mastery of them. No single method has proven universally successful; rather, a range of instructional approaches has emerged over time. Among the most prominent are Look-Say (Whole Word), Phonics-based, Whole Language, Balanced Literacy, Direct Instruction, and Structured Literacy models. In recent years, the **Science of Reading** framework has received increased attention for its emphasis on systematic, explicit phonics instruction, renewing scholarly and public debate about the relative merits and limitations of various pedagogical approaches to reading instruction.

Selected Annotated References

Aukerman, M. (2022, December 7). The science of reading and the media: Is reporting biased? *Literacy Research Association*. https://literacyresearchassociation.org/stories/the-science-of-reading-and-the-media-is-reporting-biased/

Maren Aukerman is an Associate Professor at the Werklund School of Education/University of Calgary. Her commentary on the Science of Reading has been consistently published and cited in the last five years.

This is the first of three articles written by Aukerman and published by the Literacy Research Association. It focuses on critiques of the media's response to the SoR by examining an article published in the New York Times about a popular reading curriculum—the Calkins Units of Study. Aukerman lists four major "bias errors" of the author: (1) lack of balance in reporting, (2) sensationalistic 'straw man' arguments, (3) a myopic lens fetishizing phonics instruction, and (4) logical fallacies. She notes that this weakens the journalistic integrity of the article's positionality.

Barshay, J. (2024, February 28). Proof points: Controversies within the science of reading. *The Hechinger Report.* https://hechingerreport.org/proof-points-controversies-within-the-science-of-reading/

Jill Barshay is a Hechinger staff writer. She was New York bureau chief for National Public Radio's national business show Marketplace and a 2016-17 Spencer Fellow in Education Reporting.

"Proof Points" is a brief overview of the Science of Reading controversy dating all the way back to the 1970s with a specific focus on phonemic awareness, its overemphasis on auditory skills, and its current use in classrooms. Very helpful background information/summary. The article ultimately seems to support phonics, as long as it includes auditory and visual approaches.

Burns, M. K., Duke, N. K., & Cartwright, K. B. (2023). Evaluating components of the active view of reading as intervention targets: Implications for social justice. *School Psychology, 38*(1), 30–41. https://doi.org/10.1037/spq0000519

Matthew Burns is the Fein Professor of Special Education in the School of Education at the University of Florida. He has published over 200 articles and book chapters as well as 15 books on K-12 education. Nell K. Duke is a professor and researcher of early literacy development in the Marshal Family School of Education at University of Michigan. She focuses on literacy development for children living in poverty. Kelly B. Cartwright is a professor of Psychology, Neuroscience, and Teacher Preparation at Christopher Newport

University. She is also the director of the Reading, Executive function, And Development Lab (READLab).

This article extends the Active View of Reading (AVR) that Duke and Cartwright introduced in their 2021 article "The Science of Reading Progresses: Communicating Advances Beyond the Simple View of Reading" (included in this bibliography). The study is a meta-analysis of 26 meta-analyses. They compute the effect sizes of 333 studies and found that unique components of AVR impact reading scores. The significance of this study is that it reinforces Duke and Cartwright's work.

Campbell, S. (2021). What's happening to shared picture book reading in an era of phonics first? *The Reading Teacher, 74*(6), 757–767. https://doi.org/10.1002/trtr.2004

Stacey Campbell is an Associate Professor in the Early Childhood Education and Care department of Southern Cross University in Australia. Campbell specializes in literacy, language, and teaching professional practice. The Reading Teacher is the official journal of the International Literacy Association. Its primary audience is literacy educators for children up to age 12.

The article examines a pilot study of shared picture book reading in addition to phonics instruction. It identifies a lack of shared reading and/or a focus on the phonics content when selecting books for shared reading. The article comments on the importance of quality children's literature during reading development.

Cartwright, K. B., & Palian, S. R. (2024). Considering roles of executive functions in the science of reading: A meta-analysis highlighting promises and challenges of reading-specific executive functions. *Educational Psychologist, 59*(4), 263–290. https://doi.org/10.1080/00461520.2024.2418392

Kelly B. Cartwright is a professor of Psychology, Neuroscience, and Teacher Preparation at Christopher Newport University. She is also the director of the Reading, Executive function, And Development Lab (READLab). Sierra Palian is a master's candidate in Speech Pathology at the University of Colorado, Boulder.

In this article, Kelly Cartwright and Sierra Palian explore the effects of Science of Reading-related instruction. The article ultimately supports the coordination of word reading and language comprehension. The authors posit that popular SoR literature distinguishes between these two frameworks. Based on a metanalysis of 31 studies, the authors conclude that executive function interventions significantly improve reading in students grades 1-8. This finding adds a new dimension (executive function interventions) to the public discourse on teaching reading.

Duke, N. K., & Cartwright, K. B. (2021). The science of reading progresses: Communicating advances beyond the simple view of reading. *Reading Research Quarterly, 56*(S1), S25–S44. https://doi.org/10.1002/rrq.411

Nell K. Duke is a professor and researcher of early literacy development in the Marshal Family School of Education at University of Michigan. She focuses on literacy development for children living in poverty. Kelly B. Cartwright is a professor of Psychology, Neuroscience, and Teacher Preparation at Christopher Newport University. She is also the director of the Reading, Executive function, And Development Lab (READLab).

The article addresses the Simple View of Reading (the conceptual underpinning of the SoR) before proposing the "active view of reading" theory, which expands the simple view of reading (SVR). SVR is the theory typically used to explain recent (as of 2021) iterations of the SoR. SVR posits that reading is the product of (first) decoding, and (second) listening comprehension. The active view, by extension, lists three major and interdependent contributors to reading, the overlap is a departure from SVR. The view also includes executive function as an essential part of reading that must be taken into account, an argument that is researched further in a 2024 article (Cartwright & Palian, 2024, also included in this bibliography).

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Erbeli, F., Rice, M., Xu, Y., Bishop, M. E., & Goodrich, J. M. (2024). A meta-analysis on the optimal cumulative dosage of early phonemic awareness instruction. *Scientific Studies of Reading, 28*(4), 345–370. https://doi.org/10.1080/10888438.2024.2309386

Dr. Florina Erbeli is an associate professor in the Department of Educational Psychology at Texas A&M University. This article was funded by the U.S. Department of Education's Office of Special Education Programs. Dr. Erbeli's research focuses on dyslexia, typical and atypical reading development, and predictive factors of reading achievement.

Erbeli's article is a recent meta-analysis on the "optimal cumulative dosage of early phonemic awareness instruction." In other words, a review of studies that propose specific volumes of phonics education (quantified as hours of instruction per year). NOT the definitive study, but a few news articles have cited it recently (articles also listed).

Hanford, E. (2018, September 10). Why aren't kids being taught to read? Hard Words. *APM Reports*. https://www.apmreports.org/episode/2018/09/10/hard-words-why-american-kids-arent-being-taught-to-read

Emily Hanford is an American Public Media (APM) reporter who focuses on education. Her journalistic work on the SoR has gained her national acclaim. Since starting at APM in 2008, Hanford has focused on early childhood education. Hanford is now considered one of the most well-known reporters within SoR discourse.

Referred to Hanford's episode as "ground zero" of the SoR debate, this article/podcast episode predates Hanford's more recent, and quite popular, podcast, *Sold a Story*. The episode lays out a similar argument to the more recent series. NAEP scores serve as the backdrop since they show that US children may not be achieving acceptable standards of reading proficiency. Hanford focuses on a Pennsylvania school that turned to phonics to solve its early literacy problem. The article then addresses issues in teacher preparation programs.

Hanford, E. (2022). Sold a Story: How teaching kids to read went so wrong. *American Public Media.* https://features.apmreports.org/sold-a-story/

Emily Hanford is an American Public Media (APM) reporter who focuses on education. Her journalistic work on the SoR has gained her national acclaim. Since starting at APM in 2008, Hanford has focused on early childhood education. Hanford is now considered one of the most well-known reporters within SoR discourse.

This 2022 podcast addresses reading deficits in the US. The podcast made headlines for its thoughts on the "Balanced Literacy" approach, the related Units of Study curriculum, and other "unscientific" approaches to literacy. Hanford argues that these approaches have failed disadvantaged children at disproportionate rates because they have missed out on phonics education. The podcast refers to the body of literature that supports phonics instruction as the "science of reading," and it is part of the reason for the term's current popularity. Her pieces are considered controversial.

Infante-Green, A. (2025, February 18). Don't blame 'science of reading' for low scores (opinion). *Education Week*. https://www.edweek.org/teaching-learning/opinion-dont-blame-science-of-reading-for-low-scores/2025/02

February 2025 op-ed from Angélica Infante-Green, the Rhode Island Commissioner of Elementary and Secondary Education. She previously served as the deputy commissioner of the New York State Education Department's Office of Instructional Support. Infante-Green tracks the implementation of Science of Reading to right before the pandemic, which contradicts some accounts that put its boom after the pandemic was underway.

Lewis, H. (2024, November 13). How one woman became the scapegoat for America's reading crisis. The Atlantic https://www.theatlantic.com/magazine/archive/2024/12/lucy-calkins-child-literacy-teaching-methodology/680394/

Helen Lewis is an Atlantic staff writer and author of the 2020 book Difficult Women: An Imperfect History of Feminism. She also hosts The Spark, the BBC's long-form interview series.

Lucy Calkins' Units of Study curriculum influenced decades of early literacy education. It promoted use of context clues and first letters, called "cueing" systems. Pressure from mounting research evidence and a popular podcast caused a shift away from Calkins' approach, which had become widespread. The article identifies this controversy as part of the general divide between "two broad camps--one in which teachers are encouraged to directly impart skills and information, and a more progressive one in which children are thought to learn best through firsthand experience." This article is primarily focused on the political effects of Emily Hanford's Sold a Story podcast and the Science of Reading movement.

Petscher, Y., Cabell, S. Q., Catts, H. W., Compton, D. L., Foorman, B. R., Hart, S. A., Lonigan, C. J., Phillips, B. M., Schatschneider, C., Steacy, L. M., Terry, N. P., & Wagner, R. K. (2020). How the science of reading informs 21st-century education. *Reading Research Quarterly, 55*(S1), S267–S282. https://doi.org/10.1002/rrq.352

Dr. Yaacov Petscher is a Professor of Social Work at Florida State University. He is also the Associate Director of the Florida Center for Reading Research, and the Director the Quantitative Methodology and Innovation Division.

This 2020 article attempts to address misinformation the authors have observed since the conversation about the Science of Reading began to regain publicity in recent years. This article was published as part of a 2020 special issue of Reading Research Quarterly that focused on the Science of Reading.

Schwartz, S., & Will, M. (2023, April 26). Why some teachers' unions oppose 'Science of Reading' legislation. *Education Week*. https://www.edweek.org/teaching-learning/why-some-teachers-unions-oppose-science-of-reading-legislation/2023/03

Education Week has been publishing U.S. education-related news since 1981. Sarah Schwartz is an Education Week staff reporter covering curriculum and instruction.

The Education Week article reports that some teachers and teachers' unions are concerned about teacher autonomy within SoR curricula, and there is a growing movement advocating for caution, despite enthusiastic school board responses.

Shanahan, T. (2025, February 8). Is print awareness part of the science of reading? *Shanahan on Literacy.* https://www.shanahanonliteracy.com/blog/is-print-awareness-part-of-the-science-of-reading

Timothy Shanahan is a Distinguished Professor Emeritus at the University of Illinois at Chicago. While a professor there, he founded the UIC Center for Literacy. Before that, he was the Chicago Public Schools Director of Reading. Shanahan previously served as

president of the International Literacy Association. He has written or edited more than 300 literacy education-related publications.

On his blog, Shanahan on Literacy, Shanahan responds to the question: "should we teach print awareness?" He explains print awareness is an often-overlooked aspect of early literacy, and he considers its useful features. He concludes that certain concepts within print awareness are essential (the relationship between the print on the page and words read aloud). However, some concepts (the difference between letters and numbers, page orientation) are auxiliary skills that come naturally while learning to read and do not need to be specifically taught on their own.

Spector, C. (2025, January 16). Learners with disabilities benefit from more complex reading instruction, *Stanford researchers say*. Stanford Graduate School of Education https://ed.stanford.edu/news/learners-disabilities-benefit-more-complex-reading-instruction-stanford-researchers-say

Carrie Spector is the Senior Communications Associate at the Stanford Graduate School of Education.

This article interviews Stanford professors and affiliates who research literacy education for students with intellectual and developmental disabilities. They generally advocate for a comprehensive approach that infuses phonics, vocabulary, and reading comprehension. The article references studies and additional relevant articles that may be helpful to review.

Suskind, D. (2020). The Critical Story of the "Science of Reading" and Why Its Narrow Plotline is Putting Children and Schools at Risk. *NCTE Blog*. https://ncte.org/blog/2020/10/critical-story-science-reading-narrow-plotline-putting-children-schools-risk/

Dorothy Suskind is a former classroom teacher and reading specialist, and current literacy professor.

In this blog she interrogates four themes she finds problematic in the current discussion around the Science of Reading. She particularly points out issues around the way the Science of Reading proponents 1) Hijack Terminology, 2) Reframe National Reading Panel research, 3) Attack Higher Education and use data from what many consider an unreliable data source called the National Council on Teacher Quality, and 4) Proclaim a Sky is Falling attitude about reading scores. She explains the hidden and not so hidden motivations of the Science of Reading advocates.

Thomas, P. (2023). The science of reading era: Seeking the "science" in yet another anti-teacher movement. *Journal of Reading Recovery, 22*(2), 5–17. https://readingrecovery.org/wp-content/uploads/2023/05/JRR_22-2_spring_2023_thomas.pdf

Paul L. Thomas is a professor of education at Furman University and consistent Science of Reading commentator. He taught high school English for 18 years in South Carolina. He is the author of several books on early literacy.

Paul Thomas, a consistent critic of the SoR movement, presents an attack on the SoR as a misguided political ideology. He argues that the movement perpetuates the "Bad Teacher Myth" and precludes further research/literacy innovation. Thomas is a vocal critic of the SoR movement, and the article echoes that criticism very obviously, but it also provides a clear timeline and overview of the SoR debate over the past few decades.

Tierney, R. J., & Pearson, P. D. (2024). Fact-checking the science of reading: Opening up the conversation. *Literacy Research Commons. https://literacyresearchcommons.org/wp-content/uploads/2024/04/Fact-checking-the-SoR.pdf*

Rob Tierney is Dean Emeritus of the Faculty of Education at University of British Columbia. He is a former president of the International Literacy Association as well as Literacy Research Association and the Association of Canadian Deans of Education. P David Pearson is a Professor Emeritus of Instructional Science in the Berkeley School of Education.

Tierney and Pearson's book presents a cautious, restrained assessment of phonics/SoR. The book is organized into ten "claims" that the authors consider central to the Science of Reading. They examine each claim critically, bringing up additional research and literature that they consider to be overlooked. The concluding statement is a clear overview of the book, organized into numbered conclusions. Conclusion 1.5 proposes a set of intriguing further research questions.

Wyse, D., & Bradbury, A. (2022). Reading wars or reading reconciliation? A critical examination of robust research evidence, curriculum policy and teachers' practices for teaching phonics and reading. *Review of Education, 10*. https://doi.org/10.1002/rev3.3314

Dominic Wyse is a professor of early childhood and primary education at University College London. He is the Founding Director of the Helen Hamlyn Centre for Pedagogy. Alice Bradbury is a professor of the Sociology of Education at University College London. Her research focuses education policy, classroom practices and inequality.

Wyse and Bradbury report empirical evidence from a meta-analysis of 55 experimental trials and a survey of 2,205 teachers. They conclude that the approach to phonics in England is "not sufficiently underpinned by research evidence" and they recommend changes to national curriculum policy considering their findings. England has become known for its nationwide focus on synthetic phonics.

Conclusion

As previously noted, it is unlikely that consensus will ever be reached regarding a single, universally effective method for teaching reading, as learners possess diverse preferences, backgrounds, and instructional needs. What remains clear, however, is that children greatly benefit when librarians, teachers, and parents or guardians continue to read with them throughout their childhood years. Supporting children by identifying reading materials that capture their interests and curiosity is essential to fostering lifelong engagement and success in reading.