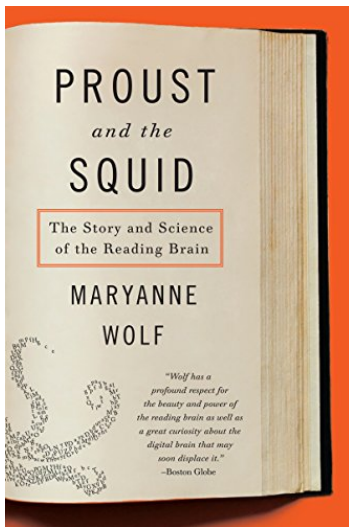
	An Interview with Maryanne Wolf
	<i>Proust and the Squid</i>
	Source: Reading Is Fundamental
	Description: We recently caught up with Maryanne Wolf about her book <i>Proust and the Squid</i> , which is an ideal resource for reading teachers looking to learn about the latest research in cognitive neuroscience and what it can teach us about reading development.



- **Tell us what *Proust and the Squid* is about.**

Proust and the Squid represents seven years of my attempts to bring to bear research from cognitive neuroscience, from history, from psychology, and child development on three important themes:

1. How did we ever learn to read when there's no gene or structure specifically genetically programmed for reading? How did we ever do that?
2. Can the knowledge of how the brain learns to read give us new insight into how children develop as individuals in their reading, how children who struggle might be conceptualized in different ways, and, finally, how children who are really beginning to read in a digital age may be different?
3. How extraordinary and beautiful a vehicle reading represents for the species. So, *Proust and the Squid* was my apologia for how reading reflects and propels the best thoughts of individuals who then give it to the species.

So those three themes, if you will, were all played out as leitmotifs in *Proust and the Squid*.

- **Tell us about *Tales of Literacy for the 21st Century*.**

After *Proust and the Squid* it became so clear to me that an understanding of what I will call Deep Reading was emerging from that book. I had conceptualized comprehension as an entire set of processes but I hadn't realized at the moment while I was writing that it is much more actually beautifully complex than what we often call just comprehension. And so my next book, which is called *Tales of Literacy for the 21st Century*, went into an explication of Deep Reading.

And as I went into that explication, I did it through three different tales. These “tales,” like Chaucer’s tales, were a child’s tale, a linguist’s tale, and a neuroscientist’s tale. And each of them was giving insight into reading and Deep Reading. And then a fourth tale came into fruition, the tale of what is happening in the Digital Age.

A curious phenomenon happened after I finished *Proust and the Squid*. I realized I was like Rip Van Winkle. I had kept my head buried for seven years, and all this work, and by the time I lifted my head, reading had changed. From 2000 to 2007 reading changed under all our collective fingertips. *Tales of Literacy* gave me an opportunity to discuss this from a very research-oriented standpoint. It really is an academic book.

- **Now tell us about your new book.**

Tales of Literacy led me to realize I have to figure out a way to bring all this knowledge in a far more accessible way, not just to teachers, but to members of society who are responsible as stewards and guardians of the next generation. So I saw this new book—which is called *Reader Come Home: The Reading Brain in the Digital World*—I saw this third book as my way to bring all of the research from *Proust and the Squid* and *Tales of Literacy* to bear on the major questions we are confronting today about, Who do we want to become? This book is coming out at the end of August.

I realized that, unbeknownst to me, as a cognitive neuroscience researcher, that what I was beginning to understand as changes to the reading brain circuit had implications for how everyone thinks, how everyone uses these Deep Reading skills like empathy and critical analysis—that we are in a digital context more likely to short circuit that Deep Reading brain because we are constantly being bombarded by information, by multitasking, etc.

So as reading itself changes, so does our thinking, so does our ability to handle complex thought, critical analysis, so does our ability to take the perspectives of others. So, if you will, the trilogy of these books began as an apologia for reading and ended as a plea for the preservation of those extraordinary Deep Reading skills and as a careful digital look at all that is needed to acquire in the 21st-century digital reader. So the arc, if you will, begins with an appreciation of the vehicle that reading represents for the species and it ends with a recognition that not only are we in the midst of change, we are responsible for pausing this moment to see how best to preserve what we have as we acquire new skills. So the reading circuit is like a Rorschach for societal change and the brain’s change.

- **How can reading teachers benefit from the latest insights from neuroscience?**

The reading brain circuit provides teachers with a heretofore little-known way of not only using the methods that they were taught but to go beyond them in a more comprehensive way. In so doing, we provide perhaps one of the most beautiful and unexpected bridges between approaches that were in the 20th century in opposition to each other. And what the reading brain circuit show us is that each part of that circuit needs explicit instruction.

So we need multiple exposures to the visual information: the letters, the letter patterns. We need multiple exposures to the phonemes, their representations. We need a great deal of practice in helping the brain connect the visual and the phonological areas. And in that practice we have to be sure that the semantic areas, the knowledge of words and their uses, is so well developed that it also can be quickly, automatically connected to the other areas.

And in the process of understanding all the parts of this circuit we are really going after what I call POSSUM, an acronym that stands for the major components of the circuit:

- Phonology
- Orthography
- Semantics
- Syntax
- Morphology

So the first 280 milliseconds of the reading brain, the circuitry, are actually needing explicit instruction on all the parts. In that process we no longer have what I call the unnecessary debate of the 20th century between methods, but a bridge that connects all of these methods' emphases. But all of them explicitly. We must be as explicit in the teaching of how words work—their meanings, their syntactic uses, their uses in sentence and stories—as we are with the explicit instruction from the very start on the letters, the letter patterns, and the phonemes and their connections.

One of the great insights that I have personally had was the debunking, if you will, of what was infelicitously called “kill and drill” methods of the past. The reality is that the brain, especially in about 40% of our children, needs many, many exposures to letters, letter patterns, and their connections to phonemes for them to be consolidated and set down. So we must never fall into the trap of the past to call that “kill and drill” when in reality it’s providing the multiple exposures that so many of our children desperately need.

So we must not fall back to the 20th-century conceptualization of reading methods but rather use the circuit to add to what we may have had as lacunae in our past methods. Everyone has something that I think they can add, but in the process throw no baby out with the bathwater.

We have an unnecessary binary view of instruction and the attempt to do what are called balanced literacy—they sound good but in practice they they are often amounting to little more than cherry picking whatever little pieces of the other methods that they weren't taught, and that's not what I'm saying. We really need explicit everything. I think the end result will be a system that can be automatic and in that automaticity allow time to be allocated to the Deep Reading processes that every child has as a goal by us as their society.

- **What advice would you give parents of children who are struggling readers?**

The first thing that I would do is I would set up two campaigns. The first campaign is the first 2,000 days and the second campaign is the second 2000 days. In the first 2000 days everybody would leave the hospital with little bags of books and like the pediatricians who are in Reach Out and Read, every well visit would give them a different little bag of books that were developmentally appropriate for that moment in time.

They would also be given a five-minute instruction in what we want to call shared reading or dialogic reading, in which parents are really beginning to understand that even though they think their child

doesn't understand what they're saying, the child is actively activating their speech and language system from two months on. That six-month-old is processing much more than any parent realizes, and the cumulative effect is now known to us.

We have neural imaging data by John Hutton in Cincinnati, a pediatric neurologist, that shows that children who are read to are activating speech and language expressive and receptive areas far more than other kids. That will help us ameliorate what is the pernicious beginnings of the achievement gap. The gap begins before children go to school. The gap begins with language and conceptual development.

Our bilingual kids need to have a rich first language development, whatever that first language is. That becomes the basis for adding a language, whatever that is. But the reality is so many of our kids are literally hearing millions and millions of words. These kids come to kindergarten needing multiple exposures but have minimal exposures to words, which means they aren't consolidated. They don't know the words they are expected to decode. When I talk about the circuit, it requires development of those parts in the first five years. And it's not happening for so many kids.

The second 2000 days begin at the kindergarten door. We want our kids assessed. They can be assessed in a minimal battery. We have the newest evidence on this in a study by my group, an MIT group with John Gabrieli, headed by my current PhD student Olga Ozernov-Palchik, and that shows us that there are about six profiles of children who are in kindergarten whom we can do better by simply through having this information.

Those six profiles, two of them are either excellent or fine readers and then four of them are groups that we really need to worry about. Those children need to have targeted, specific forms of intervention. For some of them it's because they have impoverished environments and we need to be developing vocabulary and conceptual development. Three others have different forms of reading issues that can be identified through measures of phoneme awareness, working memory, naming speed (we use the RAN/RAS) and letter-sound knowledge. Now this is all in the beginning of kindergarten. We do not need new reading disabilities because every kindergartener who is exposed to this will be able to read at the end of kindergarten, and such a battery helps differentiate what are some of the issues that kids have that we can bolster during kindergarten, not having expectations the same for every child, but preparing them for first grade in a better, more individualized way.

Then when they get to first grade we can help differentiate even more who needs intensive intervention and who simply needs more time to develop a little further. So the Intensive intervention kids we need to know from the get-go. We now also have research that my group—Maureen Lovett is the first author on this last paper with Robert Morris and myself—and we have shown without any doubt that when you intervene in first grade, your outcomes in reading performance are significantly better than when you begin as many began in third grade. We are waiting too long. We have a Wait to Fail method. We should immediately be knowing who the kids are what they need and giving them this. That for me is the real message of the second 2000 days.

- **What does digital literacy mean to you?**

My hope, and I would say the thrust of three chapters in my new book, concerns the development not of simply print literacy and digital literacy, but a biliterate brain. And so I believe that we have a great deal of evidence indicating that the print medium is one of the most important ways that we can teach our children to read with Deep Reading processes in the beginning, while at the same time introducing digital technology in all kinds of ways gradually, gradually, gradually till kindergarten. And in first grade we will be using digital technologies for the teaching of coding and programming and things that will

make the digital culture both accessible, especially to children who do not have that in their homes, and fun, and also helping to teach what we all call the STEM or the STEAM skills.

At that point it will be the case that I want like, Vygotsky, to have digital and print literacies being developed in parallel but independently and then at a certain point in time when the children have become fluent in reading and really well versed in Deep Reading they can become more able to be taught how to read on screen in a deliberate, wise way. So for me part of digital literacy involves digital wisdom. How can we be assured that some of the problems we're seeing with kids on screen are from the start being addressed? For example, we see very many of our children perceiving that they do better on screen for reading, but the results show that they are actually doing more poorly on comprehension, particularly in the understanding of the sequence of details and what that means for the plot.

We need to be able to, from the start, teach how to read on screen in ways that directly addresses the weakness we are seeing in digital reading. For me the key is the ultimate emphasis on what do we want the ideal reading circuit to have? Just as Vygotsky saw inner language as what was underlying how language and thought come together, I see Deep Reading as the analog to inner language—that we want, if you will, inner reading, Deep Inner Reading to be able to be done and apply those processes and we know how important they are. I want them to be able to be taught how to apply them in whatever medium ultimately. I think the best way to do that is to begin with print and gradually introduce digital reading. I see it as a developmental sequence and we're still learning a great deal about not only what the weaknesses are but also the strengths and how can we have the one without, in essence, short-circuiting the reading circuit that we have worked 500 years to achieve as a species?

Maryanne Wolf was the John DiBiaggio Professor of Citizenship and Public Service at Tufts University, and the Director of the Center for Reading and Language Development in the Eliot-Pearson Department of Child Study and Human Development. Currently she is Visiting Professor at UCLA, where she will direct the Center for Dyslexia, Diverse Learners, and Social Justice. She is also affiliated with the Dyslexia Center in the UCSF Medical School and with Curious Learning: A Global Literacy Initiative, which she co-founded. The latter initiative aims to help nonliterate children in remote regions in Africa, India, Australia, and our own backyards to learn to read on tablets. She is the recipient of multiple research and teaching honors, including the Fulbright Fellowship, the American Psychological Association Teaching Award, a Fellow at the Center for Advanced Study for the Behavioral Sciences at Stanford, the NICHD Innovative Research Award, and the highest awards by the International Dyslexia Association and the Australian Learning Disabilities Association. She is the author of *Proust and the Squid* (Harper), *Tales of Literacy for the 21st Century* (Oxford University Press), and over 160 scientific publications, and lectures around the world, including multiple presentations on global literacy for disenfranchised children at the Vatican's Pontifical Academy of Sciences.