

The Science of Adolescent Literacy

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Currently across the English-speaking world, and particularly in the United States, certain parties are calling for greater attention to the science of reading in literacy education. Although the public face of this campaign tends to emphasize decoding instruction in the primary grades, there are concerning implications for adolescent literacy in the form of potentially mistargeted policies. One common assumption voiced by proponents of this science is that students who struggle with reading do so because of inadequate phonics instruction. This claim is made without direct evidence from the students or classrooms in question. Should this too quick reasoning be codified into administrative regulation, it could easily be transferred across the grade levels where even less evidence can be found of deficient decoding skills as the most pressing issue or affordance for effective literacy instruction.

What should teachers of literacy for adolescents make of this science, and how should they prepare for its possible extension? Recently, the head of literacy instruction for a major U.S. city school system called George (first author) to discuss that question, and in the course of an hour-plus conversation, she asked whether he didn't believe that the science of reading was settled, as advocates claim. His answer was no.

For starters, science is never settled. It is an ongoing process of conjecture, testing, and discovery. Science doesn't hold for stasis; that's theology. What science can claim, however, are well-informed mainstream views, and these can be diverse, as when many respected scientists take one side or another of a theoretical debate (e.g., as in theoretical physics). Being scholars, they will ultimately try to settle the debate with evidence drawn from observation and experimentation, but this is a slow crab-wise process of incremental accumulation of probabilities. In the meantime, there is always rational warrant and a humble allowance for creative uncertainty.

However, mainstream scientific views shift over time, and on rare occasions, there are even major upheavals, scientific revolutions, that pull established knowledge up by the foundations and overturn it. When that happens, ongoing debates—engines of knowledge production—do not get settled so much as shift to ever

higher ground in search of better perspective. Alas, it is not long before the now elevated scholars realize that there is more than one direction to view things from up on the new perch, so the debating continues.

At least, this is how it is supposed to work, a form of dialectical progression proceeding in a civil and methodical manner. But on occasion, personal beliefs, politics, and financial considerations intermingle with scholarly self-interest to produce rancorous rows that spill over into public view, like an unhappy marriage in a trailer park. Thus, one side of the long-standing and multifront debate in reading education has decided to forgo the usual process and just declare themselves the settled and only science of reading. In truth, in this debate, there are not only a variety of perspectives but also a plurality of useful sciences to rely on.

So, what is the science of reading? It is an attenuated caricature of what was once known in literacy education as the psychology of reading, but with an undue emphasis on only particular elements and theories, such as the claim that structured phonics is superior to other phonics methods (cf. Bowers, 2020). Possibly, the proponents of this science have dropped the term *psychology* because they know it will be a tough sell: Better educated audiences are aware of the amusing smashup known as the replication crisis. At the end of the day, psychology—even behavioral and cognitive psychology—are departments in the social sciences. The advocates of the science of reading surely know that the word *social* is kryptonite for political paranoids, so they place their emphasis on the science part. That also plays well to the techno-administrative class that seem determined to run everything and are often willing to do so right into the ground, hence the history of reading education policy in the United States.

Science is fascinating and can tell us much about adolescence, about instruction, and even about reading

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(Hruby, 2020; Wixson et al., 2019). Yet, it cannot tell us everything, as its methods are limited to only those few variables that it can observe and measure at a time. As a result, its knowledge base is limited, too, even more so than we care to admit except in hindsight. Science can tell us something about the probability of certain outcomes, but it cannot tell us what we ought to do. Because the averaged probabilities that we calculate are never perfectly predictive of real-world instances, the need to determine what we ought to do in a classroom is persistent. What science tells us about literacy development is that it is complex and highly varied and involves multiple scales of process and context. So, when *science* is invoked for the purposes of guiding politically and financially motivated quick fixes or one-size-fits-all explanations to market the newest rebrand of familiar products, watch out: bunkum aplenty ahead.

Sad to say, the “science of reading” gambit to promote certain education policies became possible once many literacy educators began to reject psychology as a framework for literacy education during the last iteration of the reading wars. Although it had been the heart and soul of reading research for the better part of a century, psychology got a run for its money from the sociocultural turn in the 1990s and thereafter (Hruby et al., 2016). This alternative view inverted reading as it had been framed by psychologists (as a set of mental processes in the head of an individual reader), and described it instead as a set of practices shared within a social community or group, thereby emphasizing collective and collaborative effort. The shift to the social context was a boon for teachers, who have no way to directly access mental processes in individual students’ heads but can happily orchestrate and take responsibility for social community in their classrooms. Reading became literacy.

But given the culture wars of the era, you can probably intuit the political implications of pitting an individualistic psychological view of reading promoted mostly by older white men against a communitarian ethnographic view of literacy promoted mostly by socially and intersectionally aware feminists. Granted, the posited individual reader in the psychology of reading had been a statistical Everyman, a calculated allegory for heuristic purposes, and much of the heavy breathing for social advocacy on the other side seemed too often driven for careerist ends. Although the marriage of psychological and sociological views of literacy would have seemed a perfect complement for a comprehensive and balanced view of literacy, that is not what happened at most of the more prestigious universities. Instead, the critical sociocultural view displaced the psychological view

almost entirely in literacy education programs across the United States, relegating the latter to the dustbin of an ever-dwindling section of *Theoretical Models and Processes of Literacy* (previously titled *Theoretical Models and Processes of Reading*). Diversity was paramount but apparently only for approved variants. Educational psychology and special education became the last refuge of reading psychology.

Notably, this exhilarating sociocultural shift was never much apparent in most of the public schools and districts across the United States, nor even at many regional teacher education institutions. Nor was it a feature of most products produced by the educational publishing and testing industry. Nor did it dominate at the U.S. Department of Education or at most of the state departments of education. For all the control of the literacy journals, imprints, and associations the academic scholars held, their impact on the workaday classroom was modest at best. Their importation of, and graduate emphasis on, continental theoretical sources may not have helped matters, either, as it encouraged the embrace of anchor texts about the importance of cultural-historical context while ignoring that those texts were themselves the product of a cultural-historical context, and a context whose deep traditions were rather distinct from the traditions with which the local schools and communities were still proudly enmeshed. It was only a matter of time before the inevitable appeal of an individualistic, mechanical model of reading would reassert itself in the male-dominated halls of U.S. government and law. So, to conclude, here we are with the science of reading, a mutant simplification of a once-proud scholarly domain, and a shortage of new literacy academics sufficiently conversant with reading psychology to correct the false narratives that the mutant spins.

So Much for Reading, How About Adolescence?

What does it mean scientifically to be an adolescent? Vagle (2012) suggested that developmental psychology miscategorizes adolescence as a precise and clearly bounded biological stage, when it is rather a socially constructed term for sorting and distinguishing young people who no longer appear to be children but who are not yet adult. Variants of this “social construct of adolescence” narrative are common in the critical education literature (e.g., Lesko, 2012). Not content to distend an epistemic claim (understandings of reality are social constructs) to an ontological assertion (reality itself is a social construct), this view -isms the Other as biologism or developmentalism. Although this move may seem

to bull's-eye certain underinformed idioms among the less woke (or worse), the social construct critique falls short of an accurate characterization of developmental science, as a visit to the literature might confirm (e.g., Lerner, 2015; McCormick & Scherer, 2018; Society for Research in Child Development, n.d.).

We think it more accurate to acknowledge that according to researchers who study people as biological kinds, adolescence is a notably distinct period within a human life span with all sorts of biomarkers and behavioral tendencies to set off the bounds. It is not just a matter of nominal category. How the general population, including educators, think, talk about, and treat adolescence is a social construct. We can change how we think, talk, and treat adolescence, possibly to good effect, but we would not make it evaporate as a biological phenomenon if we did so, any more than changing how we think, talk, or treat climate change as a topic would make changes in mean global temperature instantly evaporate. We need to master the discourses, as they say, but inevitably the debt owed to reality comes due.

According to developmental scientists (e.g., Bornstein & Lamb, 2015; Lerner, 2015), when it comes to human development, social context is paramount, so how we think, talk about, and socialize adolescents has a considerable impact on teen health, growth, and social cohesion. We doubt that this claim will surprise very many secondary educators. Yet, it does so for underlying reasons becoming increasingly well understood. Little of this new science is ever referenced in the adolescent literacy literature, as if the Soviet Institute of Pedagogy were the last word on human development.

This raises a question: Should the nature of adolescence be explained categorically or in a way that allows for the tremendous variability of our students? Policymakers tally up and average students' test scores through continuous assessment as if the scores were measures of a classroom, a district, or a nation (constructed abstractions all but no less real given their impact on our lives), and decry the results as categorical evidence of ongoing failure. Policies are then proposed more for their political or financial value than for their strategic merit. They are predicated on a belief in constructed averages as a true measure of tangible real-world objects, except without the objects, and contrasted against an even more speculative benchmark to be achieved, as if it were a sales goal. Supposed gaps between the abstracted model and the variability of reality elicit calls for new approaches to instruction, in the expectation that society will be educated better as a result (i.e., made to more closely match the model). Standards and standardization

are promulgated to further justify more of this social accountability (Delandshere and Petrosky, 2004).

The problem, of course, is that society does not learn, grow, or develop in response to instruction, except in a metaphorical sense. Literally, only individual living organisms possessed of neurological systems can do that. They do so quite variously, if on behalf of shared outcomes, and it turns out that the predisposition to certain outcomes over others is not merely a matter of sufficiently clear objectives or motivations, nor entirely of cultural variance or historical contingency, but also of evolved biological functionality. Thus, educators confront an inevitable spread of variance between and within students and themselves in classrooms over time, but our fearless leaders treat the mean distillate of this as a collective singularity.

Beyond Abstraction: Literacy, Adolescents, and Love

For those who would warn against the biologization of identity and so forth, it is a good call in most cases, but the question is what to do about it. The strategy we recommend is to embrace the life sciences as a framework, in tandem with others, for understanding not only a lot (if not all) about human beings, including their development and learning, but also the provenance of their social and cultural contrivances, their persistent tendency toward social hierarchies, and their traumatizing cultural aggressions so as to guide this fascinating and influential causal narrative away from pernicious and oppressive ends (Stetsenko, 2017). Understanding the science sufficiently to not merely stand in awe of its object but critique its interpretations in an informed fashion requires a lot of heavy homework. Yet, it need not be mastered by all educators, just by enough to generate interesting theoretical and empirical contributions that would otherwise go unheralded until imposed from without through ham-fisted policy mandates.

Ultimately, adolescents may be much like adults in this: Their true nature and essence are forever a riddle, inside an enigma, wrapped in questionable fashion choices. Moreover, their efforts to forge themselves in the smithy of their smartphones is of a continuum with the broader range of human life, from the awe sincerely felt by a child in nature, to the proud but temporary gratifications of a commodified adulthood, to the stymied passions of a fearful middle age, to a senescence swaddled in loving memories. Continuity and change, as central to current developmental theory as nature and nurture, are ever both/and, never either/or.

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