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Sloman, S., & Fernbach, P. (2017). *The knowledge illusion: Why we never think alone*. New York: Penguin.

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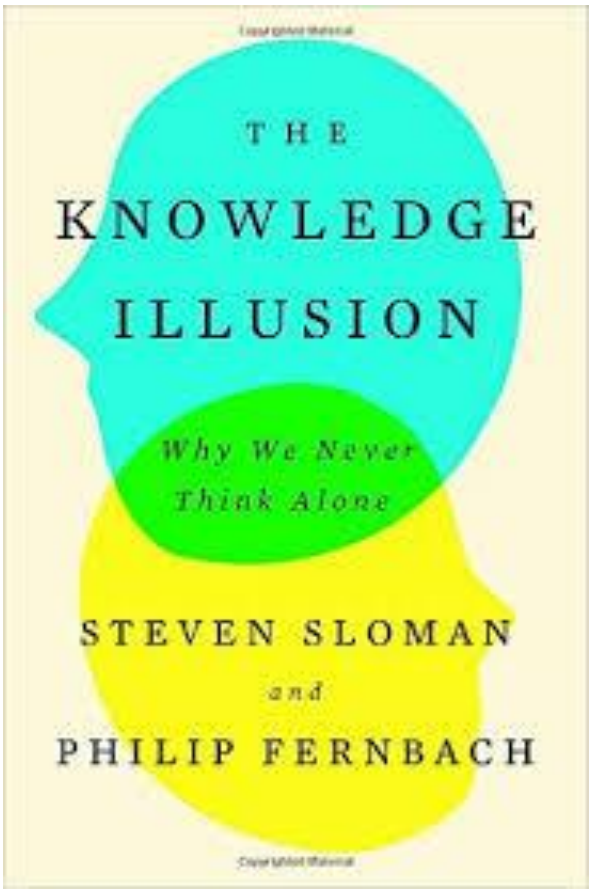

When we imagine human thinking and knowing, we generally imagine them as individual endeavors. It is believed a head full of individual knowledge is what enables humans to function best, and in education, this is how we prepare students. Cognitive scientists Steve Sloman and Philip Fernbach challenge this notion in their book *Knowledge Illusion*. They aim to convince the reader we are all susceptible to the cognitive bias of knowledge illusion because our brains are not well built for knowledge retention, but rather quite adept at overestimating the amount of knowledge they individually contain. The authors seek to convince us the secret to human success has not been our individual ability to know and think as much as our *collective* abilities to know and think, to contribute to and benefit from social networks of knowledge.

Sloman and Fernbach's book centers on social theory of cognition, which proposes people never (or rarely) think alone. While not

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specifically about education, *The Knowledge Illusion* gives rise to the question of how students should best be taught – should curricula be designed so that students leave with as much factual information as possible, or should they be taught how to find information with tools and social networks? How much should school focus on individual learning as opposed to collaborative/collective learning? Is intelligence a property of individual brains or does it entail the ability to work within networks of knowledge?

The first part of the book studies "What We Know," "Why We Think," "How We Think," and "Why we Think What Isn't So," demonstrate how our brains tend to work and how people are often susceptible to the knowledge illusion. The authors recount studies performed by Frank Keil and Leon Rozenblit showed people consistently overrate their knowledge, Participants were asked to rate their knowledge about "X" from 1 (know it really well) to 7 (don't know it at all). They were then asked to give an account of their knowledge of "X", and after giving their account, asked to re-rate their knowledge. The consistent finding was people's ratings go down, often by several digits, between the first and second rating, when they realize how little they actually know.

"The human mind," the authors argue, "is not like a desktop computer designed to hold reams of information. The mind is a flexible problem solver that has evolved to extract only the most useful information to guide decisions in new situations" (Sloman & Fernbach, 2017, p. 5). We surely process information, but unlike computers, we (a) differentiate salient from irrelevant information and (b) do not hold nearly as much information in our heads as information processing models of the brain generally suppose. Furthermore, "people are not logic machines in the way that computers are: We may make inferences all the time, but those inferences are not based on textbook logic: they are based on the logic of causality" (2017, pp. 55–56). The very thinking processes humans excel at (causal reasoning, storytelling) are the kinds that give computers (which are better at logical reasoning) fits, and vice versa. In other words, computer-like syllogistic reasoning is generally not the type of reasoning we humans do effortlessly, say, to find out whether/why our friend is angry at us or whether to spend our money on this rather than that.

We have a dilemma, then. Sloman and Fernbach argue our individual brains are less powerful information processors than we often believe. Certainly, people hold some information in their heads, but information is also stored in (and sometimes deliberately "offloaded it") into the world. Likewise, we can think individually, but more often than not, people think with their bodies, tools (e.g. books, websites), and other people.

The authors point to everything from evidence about the collaborative nature of hunting by early humans to the social nature of language to argue that human brains evolved to think in groups.[1] Some may look at such human cooperative ventures and suggest that the thought in them is still the products of individual human brains, but several theorists have convincingly argued that since each individual's thought affects, and is affected by, others, the group product is more than a sum of what each individual could have

[1] Anthropologist and former Navy Officer Hutchins documented the social nature of a Naval Crew collectively guiding a ship to port, using this as evidence of the collaborative nature of human thought. His detailed description made clear that the task required different individuals with different knowledge and vantage points to collaborate in a way where each individual's thought is constantly affecting and being affected by what the others are doing (Hutchins, 1995).

contributed individually (Gallagher, 2013; Lackey, 2014).

For many decades ideas like these have long existed in the domain of education, and have sadly gone underappreciated. John Dewey's entire philosophy of education is premised on the idea that no clear or sensible divide between doing and thinking exists, and that thinking and doing are inextricably intertwined. On thinking with other people, he said: "If the individual of whom psychology treats be, after all, a social individual, any absolute setting off any part of a sphere of consciousness as, even for scientific purposes, self-sufficient, is condemned in advance" (Dewey, 1910, p. 244). Just as influential in education was the psychologist Lev Vygotsky, who likewise emphasized the social nature of learning and, in particular, the vital role that tools in the world play to human thinking, an idea that formed the heart of his influential ideas regarding zones of proximal development (Vygotsky, 1980).

More recently, the proliferation of online spaces has led to research studies that demonstrate how learning occurs online. Many focus on those of video gamers interactions with social networks. Thomas and Seely Brown have studied how similarly interested video gamers find social networks to share information within, so that each can benefit from the collective knowledge. As they describe it, "the amount of learning that goes on in even the smallest guilds is amazing, as is the amount of data that gets processed." Because everyone builds on each other's knowledge, the whole is greater than the sum of individuals who contribute to the guild (Thomas & Brown, 2011, p. 109).

Yet, in schools, students are isolated entities and the job of teachers is to instill each individual brain with knowledge. Take the IQ test, which has a prominent place in educational spaces in diagnosing learning disabilities and placing students in "gifted and talented' programs. Sloman and Fernbach argue that IQ tests risk overlooking a more—and equally important—social type of intelligence, the ability of people to seek out knowledge from others and think collaboratively.[2] "What we really need is a measure of group performance, not a measure of individual intelligence" (Sloman & Fernbach, 2017, p. 209). The authors note a promising test developed by Anita Woolley and colleagues to test "collective intelligence" (*c*, as opposed to the *g* for "general intelligence") by placing people in groups and testing (over a series of tests) group performance. Tellingly, Sloman and Fernbach note, available evidence indicates that group members' individual IQ scores was consistently a poor predictor of group scores.

Perhaps education should not be primarily about equipping students with facts and knowledge that we think they will need once school is over because this view of education "ignores the fact that knowledge depends on others" (Sloman & Fernbach, 2017, p. 219). The authors argue, "learning… isn't just about developing new knowledge and skills. It's about learning to collaborate with others, recognizing what knowledge we have to offer and what gaps we must rely on others

[2] Chapters 8 and 9 are about how this theory of cognition affects how we view science and politics respectively. The chapter about science suggests that science works precisely because of its social nature; science improves not because individual scientists use their individual rationality to make individual discoveries, but because science is a network where each person's findings can be tested by others, and where only the strongest findings make it through the process. Chapter 9, about politics, warns us that the increasing availability of information online can often give us the illusion that we understand more than we probably do, which can often lead us toward unjustified dogmatism.

to help us fill" (Sloman & Fernbach, 2017, p. 220).

Sloman and Fernbach's recommendations differs markedly, I would argue, from the educational landscape urged by folks like E.D. Hirsch, who believe schools' primary job is to equip students with the (largely factual) knowledge they will likely need to know to interact in the world. Hirsch has repeatedly argued that schools focus primarily on providing knowledge-rich curriculum, such as his own Core Knowledge Sequence (Hirsch, 2016). Sloman and Fernbach argue these types of factual-knowledge-emphasizing curricula "aren't wrong so much as incomplete. The idea that education should increase intellectual independence is a very narrow view of learning" (Sloman & Fernbach, 2017, p. 219). In other words, we should worry less about preparing individual "knowers" and more about preparing social "knowers" because the world demands that we contribute to and benefit from communities of dispersed knowledge.

Sloman and Fernbach's work indirectly calls into question the following idea: for a culture to be cohesive, all students should come out of school knowing roughly the same things. Paraphrasing Sloman and Fernbach, this is not so much wrong as incomplete. We may well be able to isolate broad skills and sets of knowledge that we all should have (say, that enable us to communicate in a shared language). But if the key to human success is our ability to function within groups who can benefit from each member's individual knowledge, it seems equally if not more important that everyone know different things. This is certainly true of the knowledge guilds and collectives studied by Thomas and Brown (2011) and Gee (2014). What seemed to make those groups work is each member, of varying skill levels, were able to contribute and gain different things in a way that contributed to what the group knew, built on what others shared, and found what they needed. This view also aligns with the research of Scott Page, whose mathematical models and empirical research shows that group problem solving is enhanced by diversity of knowledge and expertise and diminished by homogeneity (Page, 2008). Some common knowledge may be necessary, but if human success owes to our capacity to contribute to and exploit group knowledge, maybe a more important function of school is to ensure that we all learn how to operate—find and contribute information—in a world that works precisely because we all know different things.

The Knowledge Illusion is a remarkable book that offers a new way to structure curriculum and think about human intelligence. Perhaps the best way to equip students for the real world is to ensure that they can be *codependent* thinkers who know enough to be able to take advantage of and contribute to a world where knowledge is distributed and social.

References

Dewey, J. (1910). *The influence of Darwin on philosophy*. New York: Henry Holt and Co.
Gallagher, S. (2013). The socially extended mind. *Cognitive Systems Research*, *25–26*, 4–12.
Gee, J. P. (2014). *What video games have to teach us about learning and literacy*. (2nd ed.). Macmillan.
Hirsch, E. D. Jr. (2016). *Why knowledge matters: Rescuing our children from failed educational theories*. Cambridge, MA: Harvard Education Press.
Hutchins, E. (1995). *Cognition in the wild*. Cambridge, MA: MIT Press.

Lackey, J. (2014). Socially extended knowledge. *Philosophical Issues. A Supplement to Nous*, *24*(1), 282–298.

Lupyan, G., & Swingley, D. (2012). Self-directed speech affects visual search performance. *Quarterly Journal of Experimental Psychology*, *65*(6), 1068–1085.

Page, S. E. (2008). *The difference: how the power of diversity creates better groups, firms, schools, and societies*. Princeton University Press.

Sloman, S., & Fernbach, P. (2017). *The knowledge illusion: Why we never think alone*. New York, NY: Penguin.

Thomas, D., & Brown, J. S. (2011). *A new culture of learning: cultivating the imagination for a world of constant change* (Vol. 219). Lexington, KY: CreateSpace.

Vygotsky, L. S. (1980). *Mind in Society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.

About the Reviewer

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