

Speak for Yourself

We talk to ourselves to stay motivated, tame unruly emotions,
plan for the future and even maintain a sense of self

By Ferris Jabr Illustrations by Jim Frazier

A few months back, while riding the subway, some words fell out of my mouth: “No, no, don’t worry about it.” Addressing no one but myself, I blurted this phrase while mentally replaying an earlier, embarrassing conversation. Although I have occasionally muttered out loud when alone, this was the first instance in such a public space. No one seemed to care or even notice. Still, I could not help wondering whether my mind was drifting too far from the familiar realm of the functionally neurotic. Was I spending too much time in my own head, obsessed with soliloquy?

To my relief, it turns out that just about everyone talks to themselves, both out loud and silently, much of the time. The habit begins in childhood with what psychologists call private speech: speaking to oneself aloud while playing with a favorite action figure, for example, or making bunny ears out of shoelaces. As we age, most of us converse with ourselves out loud much less often, but at least a couple of studies suggest that most adults and adolescents sometimes speak to themselves audibly. In a 2006 study by psychologist Adam Winsler of George Mason University and his colleagues, 46 of 48 women admitted that they murmured to themselves now and then. And we all talk to ourselves silently throughout life. Psychologists call this type of thought inner speech or self-talk, and it occupies about one quarter of conscious experience.

Precisely defining inner speech is difficult, but it is essentially thinking in language—as opposed to, say, a vivid and involuntary flashback to a scene from childhood or picturing what the sofa would look like against this or that wall before moving it. Self-talk can manifest as a voice or as sign language,

but it always involves words, and it is always a conscious experience. When you wake up in the morning and think, “Thank God, it’s Friday,” that’s inner speech. And when a friend sits you down and asks for advice, and you silently test several different responses in your mind before answering, that, too, is inner speech.

Researchers have studied children’s private speech for decades, but only recently have they seriously focused on self-talk in adults. “We know now that inner speech is used for all sorts of things,” says psychologist Charles Fernyhough of Durham University in England. We depend on it to solve problems, read and write, motivate ourselves, plan for the future and learn from past mistakes.

Inner speech is a ready source of motivation, confidence and guidance in all kinds of scenarios—giving a presentation, hitting the gym or asking someone on a date.

Some people, however, have difficulty recognizing the voices in their mind as their own, resulting in auditory hallucinations. Others—such as those with autism—may have trouble forming inner speech, which might impede their ability to remember complex instructions and solve certain problems. Sometimes our internal speech needs editing, as when self-talk becomes unnecessarily critical, stoking the black flames of depression. Researchers are learning, however, that when silent inner speech is difficult to produce, the audible type can often substitute. And therapists can help people with depression and anxiety silence and rewrite their self-talk to minimize psychological damage. Even if our inner voices sometimes mouth off, we need them. Inner speech, some researchers now suggest, stitches together the many threads of

FAST FACTS

THINKING IN TONGUES

- 1 Inner speech is essentially thinking in language. It occupies about one quarter of conscious experience.
- 2 We depend on inner speech to solve problems, read and write, motivate ourselves, plan for the future and learn from past mistakes.
- 3 Therapists can help people with depression and anxiety silence and rewrite their inner speech to minimize psychological damage and encourage healthy habits.

sensory experience into the tapestry of self-awareness. To know yourself, you have to talk to yourself.

First Words

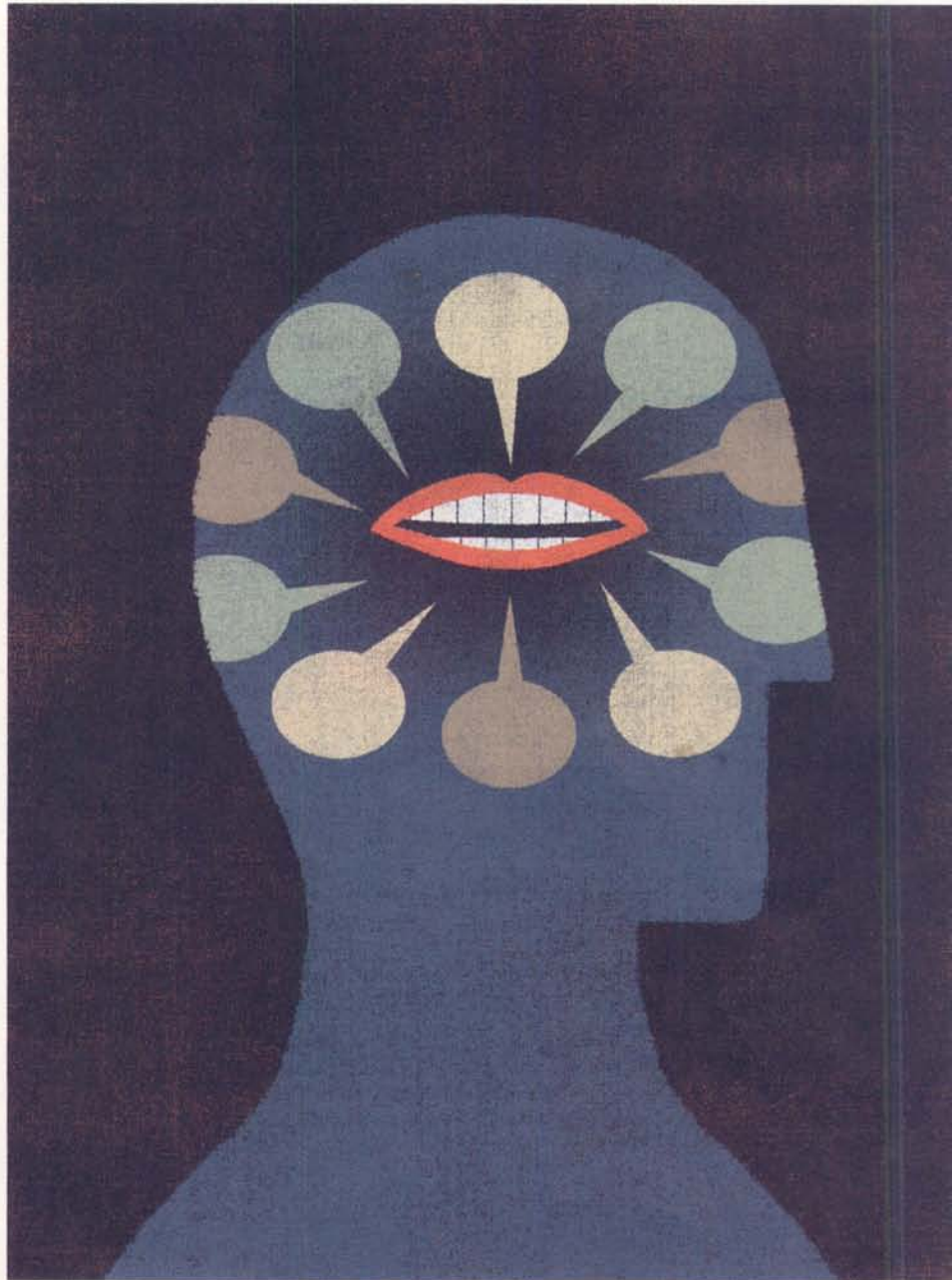
Russian psychologist Lev Vygotsky was the first to seriously investigate inner speech. In the 1920s he proposed that children internalize dialogues they have with their parents and use these linguistic templates to talk themselves through new experiences, summon concentration and calm down. A toddler playing with Legos, for instance, might dictate his plan to build a spaceship block by block—even if no one else is listening. In the decades since, researchers have confirmed that private speech is essential for learning language, and it helps children regulate their emotions. It also improves problem solving. Studies have shown that the more children speak to themselves the more efficiently they solve both jigsaw puzzles and the Tower of London task, in which they must position colored beads in a particular sequence on three pegs using as few moves as possible.

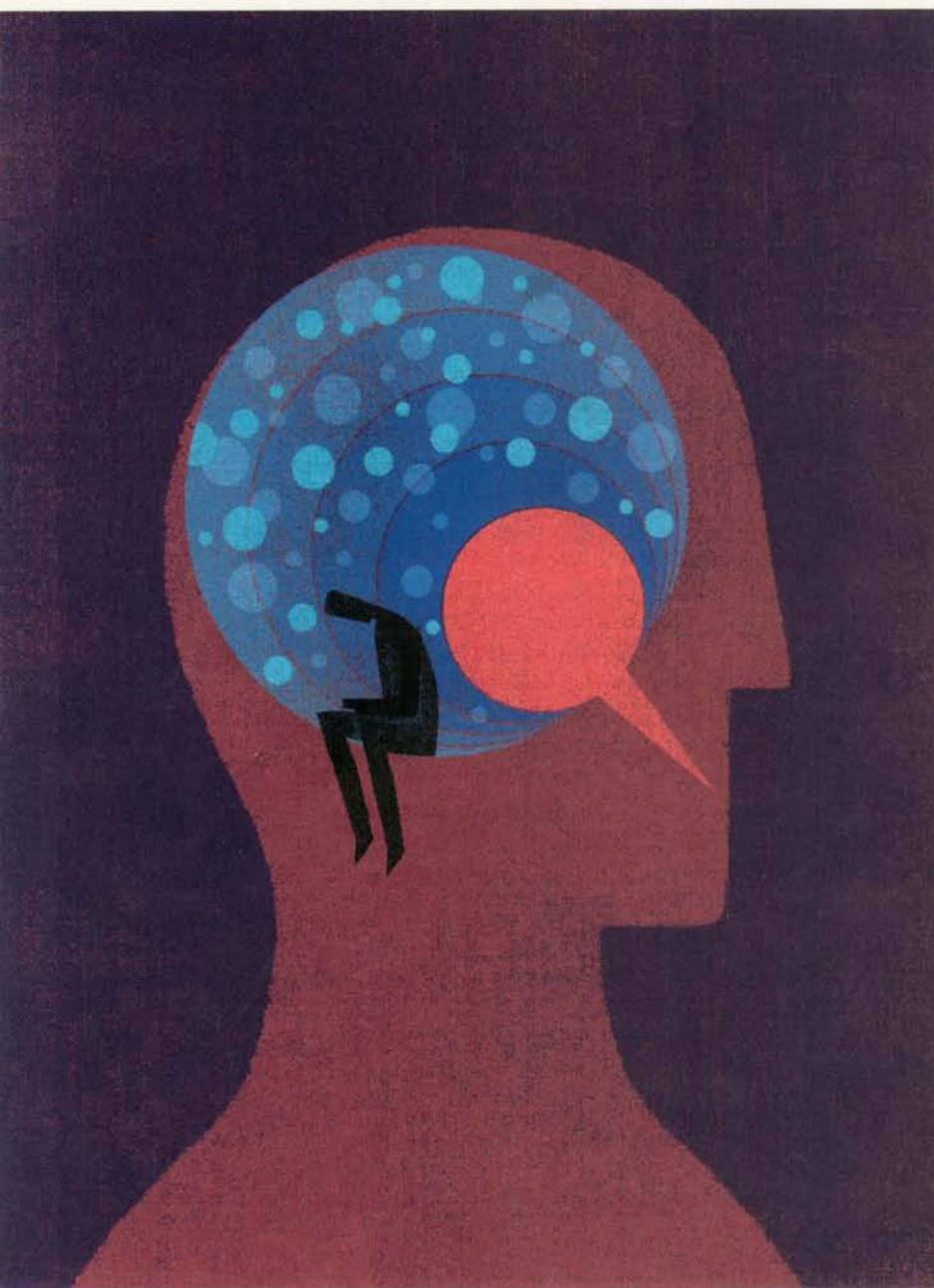
Vygotsky further established that, compared with a child's typical speech, private speech is telegraphic and highly idiomatic—similar to short notes scrawled in the margins of a book. Researchers now know that the same is true for silent inner speech in adults. Because you already know what you mean, you do not have to bother explaining everything in complete sentences.

Over the years researchers have found crafty ways to capture the fleeting thoughts inside a person's mind. Since the 1970s, for example, psychologist Russell Hurlburt of the University of Nevada, Las Vegas, has provided volunteers with beepers that sound at random times. Whenever they hear a bleep, the participants have to stop what they are doing and write down their thoughts. More recently, anthropologist Andrew Irving of the University of Manchester in England asked 100 volunteers to wear a small microphone and narrate their thoughts as they walked the streets

of New York City. The results are Joycean transcriptions of mental chatter.

Such studies and related experiments have uncovered many examples of people using self-talk for self-regulation: steering attention, taming unruly emotions and reminding ourselves of proper etiquette. Inner speech is a readily available source of motivation, confidence and guidance in all kinds of scenarios—giving a presentation to co-workers, getting out of bed early to hit the gym or working up the courage to ask someone on a first date. Particularly well studied is its use in sports.





Pep talks have been a tradition in sport and combat for centuries, from the *lanista* preparing his gladiators for battle in ancient Rome to the modern football coach psyching up his team in the locker room. For at least as long, athletes have whispered certain phrases to themselves to keep their head in the game. Only in the past 10 years, however, have sports psychologists gathered enough evidence to empirically support the notion that inner speech improves athletic performance.

Such self-talk comes in two tones: motivational—consisting of simple encouraging statements,

such as “I can do this” or “I will make this shot”—and instructional, that is, talking through specific motions. The former can boost confidence and mood and increase the energy and effort devoted to a task, whereas the latter enhances focus and hones execution. In a 2008 study by sports coaching scientist Christian Edwards of the University of Worcester in England and his colleagues, 24 college rugby players repeatedly jumped straight up as high as they could in a lab: 16 used either motivational self-talk (“I can jump higher”) or instructional self-talk (“bend and drive”) for 20 seconds before each jump; the other eight did not use self-talk. Rugby players in both self-talk groups jumped with greater force—and athletes in the motivational group jumped higher—than the eight athletes who did not talk to themselves silently.

Sometimes self-disapproval can be motivational, too. Although coaches often advise athletes to banish all disparaging thoughts on the field or court, studies have suggested that mild self-rebuke gives many athletes the impetus to get back out there and play better.

Other work illustrates the benefits of speaking detailed instructions to oneself out loud. In a 2012 study sports psychologist Eleni Zetou of the Democritus University of Thrace in Greece and her colleagues asked 28 novice teenage volleyball players to practice their serves one hour a week for four weeks using private speech to guide their movements: “When I throw the ball,

the arm goes back, over the head, look at the target and hit the ball.” Meanwhile another 29 athletes practiced without such verbiage. Volleyball coaches watched videotapes of the players to evaluate their skill. Both groups improved, but at the end of the training the coaches rated athletes who used self-talk an average of 44 out of 50 points for skill; the players who did not talk to themselves averaged 35. Explicit reminders of how to approach the goal or shoot the free throw seem to be especially helpful for beginners, whose movements are less practiced and not yet automatic.

Beyond helping people regulate their behavior in the present moment, inner speech is essential for learning from the past and planning for the future. By rehearsing and sometimes rewriting previous conversations, we can identify our faux pas and make sure not to repeat them. And by telling ourselves stories about our possible futures, we clarify what we do and do not want to achieve in life. Inner speech may be so fundamental to mental time

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travel that if it disappears, so does our understanding of “before” and “after.” In 1972 clinical psychologist Claude Scott Moss described a stroke that rendered him unable to speak or engage in self-talk. “In other words, I did not have the ability to think about the future—to worry, to anticipate or perceive it—at least not with words. Thus, for the first four or five weeks after hospitalization I simply existed.”

Inner Chorus

Although talking to oneself is often advantageous, too much of the wrong kind of inner speech can backfire. Rumination—obsessively mulling over painful experiences—is both a symptom of and a risk factor for depression. Likewise, thoughts of impending doom often intrude on the minds of people with anxiety disorders. Some psychiatrists have tracked the severity of anxiety and depression by monitoring inner speech. In a 2007 study conducted by psychologist Philip Kendall of Temple University and his colleagues, 145 children with generalized anxiety disorder and social anxiety filled out

surveys asking how often anxious self-statements (“I am very nervous”) and positive ones (“I am a winner”) entered their minds in the past week. Kendall found that the more often a child engaged in anxious relative to positive self-talk, the worse the child’s anxiety, and the more this ratio diminished in therapy, the greater the child’s progress.

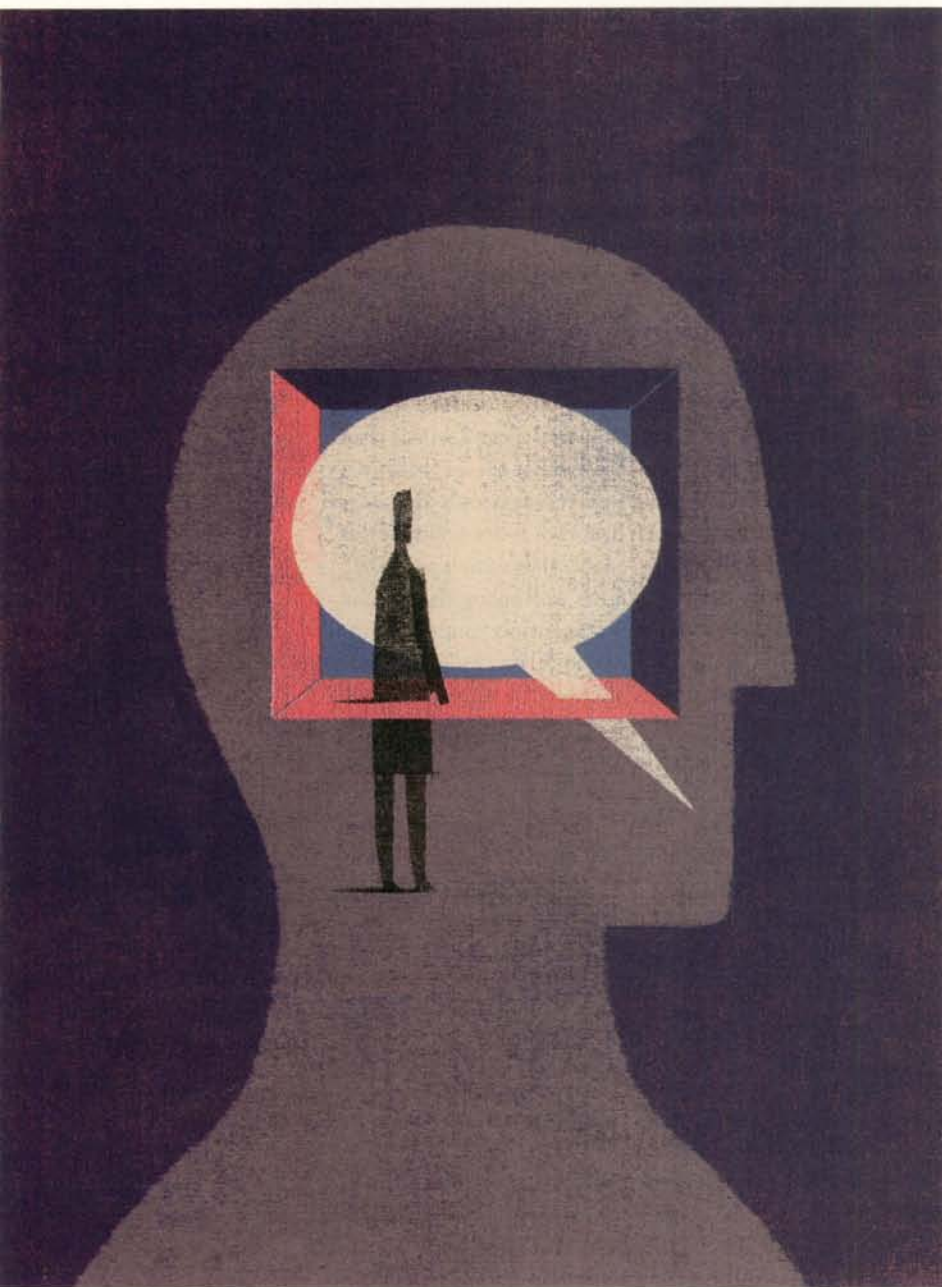
“People are recognizing that rumination is important in depression and anxiety, and words that repeat in inner speech can be a target for therapy,” Fernyhough says. “Even just telling people about inner speech and where it comes from seems to be beneficial.” Giving an official label such as “inner speech” to verbal thoughts and recognizing that they can be tweaked is immensely empowering. Psychiatrists have devised several strategies that can help people catch themselves in the act of ruminating and quiet pessimistic or critical thoughts before they multiply. When combined, cognitive-behavior therapy and mindfulness meditation, for example, can increase awareness of the mind’s habits, which opens up the possibility of changing them. When depression tries to turn someone’s inner speech against them with irrational thoughts of hopelessness—“There’s no point in getting out of bed today. No one cares about you, and your so-called career is pathetic”—one can fight back with self-talk that contradicts those negative thoughts and provides perspective: “You are lucky to have family and friends who love you a lot and a great job with supportive colleagues.”

Whereas many people with depression and anxiety must learn to mute their unhelpfully loquacious minds, other individuals have the opposite problem: they may not talk to themselves enough. Because children pattern inner speech after dialogue with others, individuals with autism spectrum disorder—who have difficulty recognizing social cues and participating in lengthy, intimate conversations—may have trouble internalizing dialogue to generate inner speech.

In particular, autistic children find it difficult to follow arbitrary rules in tasks psychologists devise, such as “If a card has a red circle, put it in this box. If it has a blue triangle, put it over here,” especially

THE AUTHOR

FERRIS JABR is an associate editor at *Scientific American*.



when they have to silently repeat detailed instructions in their mind. Yet a 1999 study by psychologist James Russell of the University of Cambridge and his colleagues suggests that children with autism can overcome this mental hurdle when allowed to speak out loud to themselves. Russell challenged 19 children with autism and another 19 typically developing kids between the ages of five and eight to associate cards depicting the moon with daytime and cards depicting the sun with night. Instead of writing down their answers or silently sorting the cards into two piles, the children were asked to say “night” to pic-

tures of the sun and “day” to images of the moon. Both groups did equally well.

A 2007 study by Winsler and his team complements this earlier research. He videotaped 33 people with autism, between seven and 18 years old, and another 28 typically developing children and adolescents as they completed a card-sorting task and a computer game in which they had to construct a virtual stick by adding or subtracting segments. Although the children with autism had a harder time successfully finishing the tasks, when they were able to talk to themselves, their chances of getting a correct answer rose much more than those of a typical child using the same strategy.

For other people, the difficulty is not producing or editing inner speech but identifying it. Auditory verbal hallucinations (AVHs) are voices people hear in their head but do not recognize as their own. Long associated with schizophrenia, AVHs can also accompany bipolar disorder, personality disorders and temporary periods of psychosis, and about 15 percent of healthy people occasionally hear sounds or voices that do not exist outside their mind, according to a 2012 study by Fernyhough and his colleagues.

When we speak to ourselves in our mind, a region of the brain in the frontal lobes known as Broca’s area—which is essential for producing speech—sends commands backward to Wernicke’s area on the border of the temporal and parietal lobes, which is necessary for understanding speech. The relayed message tells Wernicke’s area not to respond to this internal voice the way it would to someone else’s voice. (A similar feedback loop explains why we cannot tickle ourselves; the brain reminds itself that we are the ones doing the tickling.) In a 2001 study psychiatrist *Judith Ford* of the University of California, San Francisco, and her colleagues discovered that the electrical signals traveling between Broca’s and Wernicke’s areas are weaker than average during inner speech in people who experience AVHs. Similar research has found that in those who hallucinate voices, a range of

Children with autism can more easily follow arbitrary rules such as “If a card has a red circle, put it in this box,” if they are allowed to speak out loud to themselves.

brain areas involved in distinguishing different mental voices—your own voice from the memory of a friend’s speech, for example—are either underactive or show unusually timed electrical activity. Such neurological insights may help researchers develop treatments for people whose inner-speech circuitry could use a little fine-tuning.

Silence Is Selfless

Hallucinated voices often force someone to question reality. In a healthy mind, inner speech does exactly the opposite: it affirms who we are and what we are experiencing. Inner speech’s most important purpose—and the one that is most difficult to study in controlled experiments—may be maintaining a sense of self. Every day our minds write and edit the ongoing narrative of our lives. We depend on a continuous stream of simple silent thoughts—“All right, time to start the day”; “I had better take an umbrella”; “This reminds me of when ...”—to preserve our identities as sentient, self-aware individuals with a past and future.

Helen Keller has written that before she learned language, she did not have self-awareness: “Before my teacher came to me, I did not know that I am. I lived in a world that was a no-world ... When I learned the meaning of ‘I’ and ‘me’ and found that I was something, I began to think. Then consciousness first existed for me.”

Psychologist Alain Morin of Mount Royal University in Calgary has used such anecdotes to support his theory that inner speech is “one of the most important tools we use to become aware of the self. It’s so important that when we lose it, we observe

deficits,” he says. One of the most poignant and recent examples of such deficits is the story of neuroanatomist Jill Bolte Taylor.

In 1996, when 37-year-old Taylor was sleeping, a blood vessel exploded in her brain. She woke to a pounding pain behind her left eye. That morning she became unable to walk and talk and forgot much about her life. A blood clot the size of a golf ball had formed inside her head, cutting off oxygen supply to both Broca’s and Wernicke’s areas. As a result of her stroke, Taylor temporarily lost much of her ability to converse with herself in her mind and, it seems, much of her self-awareness along with it. In certain moments, her inner chatter vanished, and her mind was totally silent. “Those little voices, that brain chatter that customarily kept me abreast of myself in relation to the world outside of me, were delightfully silent,” she wrote. “And in their absence, my memories of the past and my dreams of the future evaporated.”

The fascinating possibility implicit in such experiences is that our sense of self is an elaborate illusion—a very convenient fiction maintained by our incessantly chatty mind. When our mind shuts up, we disappear. If that is true, we could all stand to balance our self-involvement with a little more humility and humor. “Jill Bolte Taylor died that day,” Taylor says of her ordeal. “I did not have her memories, her likes or dislikes, her education, anger, her love, her relationships. Now I don’t take Jill Bolte Taylor half so seriously as before.” **M**

FURTHER READING

- **Still Talking to Ourselves after All These Years: A Review of Current Research on Private Speech.** A. Winsler in *Private Speech, Executive Functioning, and the Development of Verbal Self-Regulation*. Edited by A. Winsler, C. Fernyhough and I. Montero. Cambridge University Press, 2009.
 - **Effects of Self-Talk: A Systematic Review.** D. Tod, J. Hardy and E. Oliver in *Journal of Sport Exercise Psychology*, Vol. 33, No. 5 pages 666–687; October 2011.
 - **Inner Speech.** A. Morin in *Encyclopedia of Human Behavior*. Second edition. Edited by V. S. Ramachandran. Elsevier, 2012.
- From Our Archives*
- **The Essence of Optimism.** Elaine Fox. January/February 2013.
 - **Listening to Voices.** Eleanor Longden. September/October 2013.