

The Running Conversation in Your Head

What a close study of "inner speech" reveals about why humans talk to themselves



"Woman With Mirror"

Frederick Carl Frieseke / Wikimedia

JULIE BECK | **7:00 AM ET** | **SCIENCE**



TEXT SIZE



Like *The Atlantic*? Subscribe to [the Daily](#), our free weekday email newsletter.

SIGN UP

Language is the hallmark of humanity—it allows us to form deep relationships and complex societies. But we also use it when we’re all alone; it shapes even our silent relationships with ourselves. In his book, *The Voices Within*, Charles Fernyhough gives a historical overview of “inner speech”—the more scientific term for “talking to yourself in your head.”

Fernyhough, a professor at Durham University in the U.K., says that inner speech develops alongside social speech. This idea was pioneered by Lev Vygotsky, a Russian psychologist who studied children in the 1920s and noted that when they learned to talk to other humans, they also learned how to talk to themselves, first out loud, and eventually, in their heads.

Inner speech, Fernyhough writes, isn’t bound by many of the conventions of verbal speech. For one, we can produce it much faster when we don’t have to go at the pace required to use tongues and lips and voice boxes. One researcher the book cites [clocks inner speech](#) at an average pace of 4,000 words per minute—10 times faster than verbal speech. And it’s often more condensed—we don’t have to use full sentences to talk to ourselves, because we know what we mean.

But it does maintain many of the characteristics of dialogue. We may imagine an exchange with someone else, or we may just talk to ourselves. But that doesn’t mean it’s not a conversation. Our minds contain many different perspectives, and they can argue or confer or talk over each other.

“We are all fragmented,” Fernyhough writes. “There is no unitary self. We are all in pieces, struggling to create the illusion of a coherent ‘me’ from moment to moment.”

I spoke with Fernyhough about how the fragments of ourselves communicate through inner speech, the difficulty in studying the phenomenon, and what it might teach us. A lightly edited and condensed transcript of our conversation is below.

Julie Beck: In your view, is there a difference between “inner speech” and just thinking? Is inner speech a subcategory of thought or are they one and the same?

Charles Fernyhough: I think “thinking” is a tricky word. Thinking means a lot of different things and we’re not often very good at being clear what we mean by it. So I try to avoid it—quite a difficult term to avoid. But it’s kind of everything the mind does. A certain category of thinking that we call verbal thinking, and that’s essentially inner speech, the stuff that we do in words. But I certainly think you can be intelligent and do lots of really clever stuff without language. Babies prove it every day; animals prove it every day.

Beck: The obvious challenge to studying this is that the only thoughts you can really know with any certainty are your own. So what are the ways researchers have devised to get around that?

Fernyhough: It is a tricky thing to study, and when I was starting out there wasn’t much research on it. There were some studies done in the Soviet Union in the ’20s and ’30s, but there wasn’t much going on in the West, for some very good reasons. It’s impossible to see into someone’s mind, you can’t read their thoughts, you’ve got to get them to report on their thoughts. That’s tricky because the very act of observing the process could change the process.

For a long time, people were saying you just can’t turn the focus on consciousness in this way because it’s so open to distortion. And that started to change, I’d say, in the last 20 years or so. People are studying consciousness as a scientific topic of inquiry. And they’re getting better techniques for studying things like inner speech.

“If you watch a small child playing with her toys, you’ll probably see her

talking to herself.”

We can look at individual differences between people and how much they seem to use inner speech and how that relates to their cognitive profile. We can look to see if you block the language system through giving people a secondary task like repeating a word over and over, does that affect the primary thing that you're interested in? You can ask people, you can give them questionnaires, you can use different methods of experience sampling, and with new techniques, you can start to look at what's going on in the brain when people seem to be doing inner speech.

Beck: Obviously there's going to be a wide variety of what people report their inner speech looks like and acts like, but have you been able to determine any overarching, seemingly universal qualities to people's inner speech?

Fernyhough: We've started to realize that inner speech isn't just one thing. I think it was assumed that inner speech was just this kind of monologue, the output of a solitary voice chattering away in your head. And we now think there are a few main kinds of inner speech. Inner speech varies according to how compressed it is, how condensed. We think inner speech varies according to how much it's like a conversation between different points of view. We're starting to tease apart these different qualities. And that fits with the idea that inner speech has a lot of different functions. It has a role in motivation, it has a role in emotional expression, it probably has a role in understanding our selves as selves.

Beck: Let's talk a little bit more about what the different purposes or uses of it are. I know one common example is in sports, people talk to themselves to improve their performance. But what are some other reasons why we might do this?

Fernyhough: If you buy into the theory of Vygotsky, inner speech is there

because it's a sort of internalized version of what we used to do out loud. As young children, we engaged in social dialogues, we talked to other people, and we went through a stage known as private speech, where we talk to ourselves out loud. Then that becomes completely internalized, it's all going on silently in the head. For Vygotsky, that self-directed language had all sorts of different functions, so a key one was planning out what you're going to do. If you watch a small child playing with her toys, you'll probably see her talking to herself. She's sometimes talking about irrelevant stuff, but often she's saying "I'm going to build a train track" or "I'm going to build a house," or "This house is going to look like my aunty's house," or whatever. There's a commentary, which is apparently helping her to think through what she's doing, and plan what she's going to do.

But we use inner speech to reflect on the past as well. It has functions in imagination, in creating alternative realities. And it has these roles in motivation, very commonly as you see in sports. Where people will psych themselves up, but also tell themselves off. They'll use private speech to give themselves a ticking off after they've done something dumb. And I think we all do that, it's just sort of accentuated in sports.

Beck: So I talk to myself all the time, out loud. As well as in my head. You mentioned that Vygotsky's theory is that all these things we used to do as kids, talking to ourselves out loud, moves inside the mind. And for me, I'm still wandering around my room muttering like "OK, where are my keys, here they are, got my phone, got my wallet blah blah blah..." Is that a similar process, do you think? Whether it's out loud or in your head?

Fernyhough: I don't see any reason to think it's something different. I think it's the same private speech we used to do a lot when we were kids. As adults, in particular situations, we find it really useful to say it out loud rather than just in our heads. The words are out there, echoing through the air for a split second. They're a little bit more tangible, you can have a memory trace of what you just said. So it sticks in your head a bit easier.

“We wouldn’t have lasted very long with that saber-toothed tiger if we were muttering away to ourselves in the bushes.”

I’d like to hazard a guess that when you talk to yourself out loud, things are just a little bit more difficult or challenging or stressful than usual. I think we particularly start to say things out loud when the going gets tough. That certainly fits with how private speech works with children, children will talk to themselves more when things are more difficult.

The very fact that adults do talk to themselves does suggest we need to rethink that bit of Vygotsky's theory. Although the inner speech in our heads comes from that social language initially, and then this out loud private speech, when it goes underground, it can come back out again. It doesn't go underground permanently. It's not a one-way street. I would say most people talk to themselves, but there's still a sort of social embarrassment about doing it.

It’s quite nice to speculate about why we do this from an evolutionary point of view. When we acquired language and when we started to use language in out-loud private speech, we'd have learned pretty quickly that it’s not a good idea to talk to yourself out loud when you're in a difficult dangerous situation. We wouldn’t have lasted very long with that saber-toothed tiger if we were muttering away to ourselves in the bushes. And then there's a sort of social and cultural pressure as well. If you're going around saying what you think, your competitors, your rivals, the other people around you will know what you’re thinking and then it’s hard to fulfill your plans. So there are some good reasons for doing it silently.

Beck: Of course, most of the situations we're doing it in now are not that

extreme. It's funny, I always find I talk to myself out loud most at the grocery store. Just something about the grocery store stresses me out, all the people looking at you while you're trying to buy your food.

Fernyhough: Although this is solitary speech, it's speech for the self, it seems to be stimulated by the presence of other people. Children do it more when there are other kids around. And I think that might apply to adults as well—if you're in a context where everybody else is muttering to themselves, [you might, too]. I do it in the supermarket because I'm trying to remember the last things on the list.

Beck: Or you can't find something, it's supposed to be over here but it's not.

Fernyhough: There's [a neat study](#) that shows that kind of self-talk actually helps you do exactly that—pick items from a supermarket array. That's one of the benefits that's been proven for self-talk.

Beck: You mention that part of Vygotsky's theory is that as we're learning social speech, we're also learning internal speech. Walk me through: How does the development of spoken language correspond with the development of inner speech?

Fernyhough: So Vygotsky thought that two things come together in early childhood. You have some basic intelligence, which any one-year-old baby is showing. They're able to do all sorts of things, initiate actions, work stuff out, remember stuff. But that's intelligence before language—it's prelinguistic intelligence. And then you've got this thing that comes along which is language. It's quite phenomenal how quickly most kids acquire language. The idea is not that you *need* language for thinking but that when language comes along, it sure is useful. It changes the way you think, it allows you to operate in different ways because you can use the words as tools. Somewhere around age 2, language comes together with intelligence and bang! Something really special is created. And the thing that is created might well be unique in the universe.

You don't have to have the kind of language that we're speaking now, you can have a sign language, you can have any kind of language. Lots of people say, "Well how do people who are deaf think?" And I say, "Well, they use their language." There's lots of evidence that there's people who have a kind of inner sign conversation going on. They use sign to regulate their thinking just like we use spoken language.

It's fascinating because people who become deaf have differing amounts of exposure to language. Some people are born completely deaf, some people are born with a bit of hearing and get exposed to a bit of language, some people go deaf in early childhood, and so on. So you tend to get a bit of a mix. Some people, depending a bit on their language experience will say they have a more acoustic inner speech that's probably like your and my inner speech, but others will say it's much more sign-y, it's much more of a visual thing going on.

Beck: You think of inner speech in terms of a dialogue. If it's between the self and the self, how does that splitting of the self work out internally? Is it like the old Freudian superego telling the id, "Don't eat that donut?"

Fernyhough: That can be part of it. The key thing is that the self is multiple, that we have different parts to the self. Whether you want to fit that into a Freudian frame or not, that can be useful, but it's not really the way I take it. The most important thing is that there's this basic structure of a dialogue where somebody's speaking and somebody's listening. It can be you as a listener but it can also be another person. I can have an inner dialogue with my mum, for example. A few people have told me over the years that they have inner dialogues with people who aren't here anymore. It can be a dead person, it can be an imaginary person, it can be God. In the book I tried to use this as a way of rethinking the idea of spiritual meditation and of prayer. The idea of having a conversation with another being. To me, it's all made possible by that dialogic structure that's created because of the way we develop as children. Because we internalize social dialogues, we bring in that dialogic

structure and it's right there at the heart of our thinking.

Beck: People are not very good generally at reporting the specifics of what's going on in their minds, right?

Fernyhough: When we use [descriptive experience sampling](#) [in which people are asked to report on their own inner speech] , we assume that a lot of what people say when they are asked about their experience is kind of generalizations about what they *think* is in their own minds rather than what is actually in their own minds. And that's why people can be surprised by DES. People can think their thoughts are a bit negative but they turn out to be quite joyful, or vice versa. And that is a really fascinating philosophical question, because it suggests we can be mistaken about our own experience. And if we can be wrong about what goes on in our heads, then that's pretty wild.

Beck: So people might have fundamental assumptions about their personality or their thought patterns and then find out they're not true?

Fernyhough: Yeah, exactly, and it even could apply to certain aspects of mental health. Russ Hurlburt, [who created DES], has an example of somebody with OCD in one of his papers, where he talks about this character who complained of having constant intrusive obsessive thoughts, but when he did DES, he found there wasn't nearly so much of that.

Beck: He was just noticing those ones more perhaps?

Fernyhough: Yes. So I think what is happening is we make a lot of self-generalizations about our experience, we have a kind of self-theoretical approach to our experience that doesn't always match up with what's actually there when you try and capture it moment by moment.

Beck: So how does that apply to trying to understand what happens to people who hear voices or have auditory hallucinations?

Fernyhough: The basic story is quite a simple one.



[ng to Live With the Voices in Your](#)

[Hearing Voices Is a Good Thing](#)

Hearing voices is a frequently very distressing experience. It's usually associated with severe mental illness, with a lot of different psychiatric diagnoses. It's not particularly specific to schizophrenia. And it also happens to a lot of people who don't have mental illness. A lot of regular people will have relatively fleeting or one-off experiences of hearing a voice at some point in their lives.

It can be very very distressing. It can also be rather neutral and it can even be positive, uplifting, and guiding in certain cases. The idea is that when somebody hears a voice, what's happening is that they're actually producing some inner speech but for some reason they don't recognize that speech as having been produced by themselves. It's experienced as something that doesn't belong to the self, that comes from outside.

There's also a lot of problems with that idea. Many people who hear voices reject the idea that it's just their inner speech. They can be quite distressed by the idea that what they're hearing is just themselves speaking, often because what is said is so unpleasant. And also other factors must be involved, memory seems to play a huge part in this. Hearing voices is strongly associated with traumatic events. Somehow those traumatic events seem to be breaking back in to consciousness in a transformed way. So any account of hearing voices has to bring memory into it in some way. We propose that there may be different kinds of hearing voices, I think it's likely that it's not just one thing.

Beck: You write, “Another area in which inner speech might turn out to be important is in our reasoning about right and wrong.”—I know there hasn't been any research on that yet really, but I'd like to hear what you think. How might the way we talk to ourselves, or the way we interrogate our own beliefs in our minds affect our moral judgments? Is this how we can change our own

minds?

Fernyhough: I would say I talk to myself when I'm grappling with a dilemma. Not solely, but I do a fair bit of it when I've got a problem to solve that may be a moral problem. It makes sense to me that something that is a useful tool for cognition would be useful when we come to reason about moral issues. Of course a lot about morality is instant and emotional and not really thought through. But it wouldn't surprise me if, for a particular kind of moral thinking if we turned out to use language quite a bit.

There's an element of all this, which is about gut instincts. I do tend to trust my gut instincts a lot of the time, because I feel I'm doing some processing, I'm doing some intellectual work, but it may not be conscious, it may not be anything I could put into words. But I'm sure there are some other parts where thinking it through, talking it through [internally is helpful.] Just like talking a problem through with a friend works partly because we're able to put it into words, and have that dialogue and have that to and fro of perspective—that can be amazingly useful. Even just saying the thing out loud can be incredibly helpful.



ABOUT THE AUTHOR



JULIE BECK is a senior associate editor at *The Atlantic*, where she covers health.

[Twitter](#) [Email](#)

From The Web

Ads by Revcontent



**Japanese Millionaire
Exposes How She
Earns \$119/Hour From**

WAHC

**Japanese Millionaire
Exposes How She
Earns JD 119/Hour**

WAHC

**People Are Cancelling
Their Netflix Account
Because Of This Site**

How Finance Daily

**7 Things That Happen
when You Do Planks
Every Day**

Today'sDiets