

## What Is Essential Is Invisible to the Eye

By Morton Gernsbacher,  
Sir Frederic C. Bartlett and Vilas  
Research Professor of Psychology

I'm very fortunate. I hold a named professorship at a major research university. For the past twenty years, I have investigated human cognition and language. My doctoral training occurred long after the "cognitive revolution," and I could take for granted the assertion that many

aspects of cognition are not observable in overt behavior.

My first professorial position allowed me to rub elbows with cognitive-science greats such

as Michael Posner, who coined the term "covert attention," which means that the direction in which a person's eyes are oriented does not always indicate the direction in which his or her attention is focused. For over two decades, I have taken for granted the assertion that the eyes do not always reveal a person's attention. In my research, I use indirect laboratory techniques, such as functional brain imaging, to investigate how people understand language. I have never had to ask participants in my experiments to point to an object, to match pictures of objects, or to pronounce the name of an object.

I'm a pro at using indirect methods to understand human cognition and language, so it never dawned on me to question the cognitive competence of my son — despite the fact that he did not speak, he did not appear to follow my point, and he did not appear to monitor my gaze. To this day his speech is severely belabored, produced primarily with vowels rather than with vowels and consonants, and is extraordinarily sparse. In other words, he is what others refer to as "nonverbal."

It is true that I almost bought into the "low-functioning" bill of goods about two years after my son was given the diagnosis of "autism" and was still struggling to produce speech. But I was duped for less than a fortnight. Despite the fact that he had been considered "untestable" at twenty-three months on a commonly used baby IQ test and the label "profoundly retarded" had been entered into his records, I knew he was bright. Nay, brilliant. It was easy for me: I'm a cognitive scientist.

I don't find remarkable the juxtaposition of "absolutely typical autistic behavior" with a high level of intelligence. It is not merely cognitive science that has taught me this lesson; it is my beloved son.

I don't have enough space to tell you all that my son has taught me in his six years. These are not the lessons of interminable patience, enduring tolerance, and unconditional love. Those are the skills that *he* has had to hone just to deal with the rest of the world, such as the child on the playground who belligerently asks, "Doesn't he talk?" and the adult who, after overhearing my son's squealing, states in his presence that she thought she was in the company of an animal.

Many of the lessons my son has taught me are painfully missing from the scientific literature. Instead, we scientists spend far too much time pinpointing what we propose is damaged, abnormal, and aberrant, and precious little time articulating the wonderment, much less exploring how or why things work.

My son has, for example, illustrated that language is more than speech. Over one thousand scholarly publications in the field of autism confuse these terms, even though we know that language is the mental representation of concepts and the relations between and among those concepts; speech is merely the physical production of sounds to express language. Just because a person gropes for speech does not mean that she or he "lacks language."

Because speech was painstakingly difficult for my son, we sought a different way to communicate. Through his many months of hard work, my son can independently hold a marker and grossly scribble through very widely spaced answers such as "yes" and "no" or traditional multiple choice tests.

Although he is home schooled, my son took the state public school year-end achievement test to assess reading, writing, and math. With the only modifications being the wider spaces between answer choices and permission to jump enthusiastically on an indoor trampoline after finishing each section, my son not only passed but made zero errors on the standardized test for sixth graders. He was five years old at the time. My son *has* language; my son struggles with *speech*.

I am not suggesting that all five-year-old children with the label of autism could or should perform academically at the sixth-grade level. I am advocating that it behooves scientists, professionals, parents, and all of us to remember the fundamental tenet of the cognitive revolution: many aspects of cognition are not observable in overt behavior.

It still hurts when I read comments such as those of a well-known autism researcher in *USA Today*: "It's as if they (people with autism) do not understand or are missing a core aspect of what it is to be human." However, I am fortunate. Quickly after I read such an ignorant statement, the hurt turns to anger and then to pity — for those who have not learned the lessons I have been fortunate to learn, both in my laboratory and in my heart.

### Web Course on Exploring Autism: Beyond Myths and Misconceptions

This semester, Morton Ann Gernsbacher began offering a three-credit, Web-based course on autism. The course is intended for anyone who works with or knows children or adults diagnosed with autism-spectrum disorders, or anyone who simply wants to learn more. Its goal is to understand persons who receive such diagnoses and what they would like researchers, parents, and practitioners to know about them. It also examines definitions, diagnoses, proposals about the origins of autism disorders, and approaches to remediating behaviors that are considered autistic. For more information, visit <http://144.92.102.54/autism-sample.html>.

Here is my secret,  
a very simple secret:  
It is only with the heart  
that one can see rightly;  
what is essential is  
invisible to the eye.

— Antoine de Saint-Exupéry,  
*The Little Prince*

