AUTISM: FROM MIND BLINDNESS TO CONTEXT BLINDNESS

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What makes social interaction so difficult for people with autism spectrum disorders (ASD)? Traditionally, we have attributed it to both brain physiology (different "wiring" of the brain) and social skill/social understanding challenges, often referred to as impaired perspective taking or "theory of mind" (ToM). We use the term "mind blind" with this population and assume it is this mind blindness that makes it difficult for individuals to relate to others. However, recent research on the social abilities of people with ASD is suggesting that mind blindness is but one piece of the intriguing puzzle about how individuals with ASD think and process the social world around them.

The idea that people with ASD lack social skills and social cognition is based on years-old studies involving younger subjects with autism *who also had lower cognitive abilities.* Today we are beginning to recognize that ToM correlates significantly with IQ, especially verbal IQ, meaning that today's growing population of higher functioning people on the spectrum may not be accurately represented. Recent studies with more able adults with high functioning autism or Asperger's Syndrome have shown that their social cognitive abilities are far *better* than we used to think. This research suggests that a shift in thinking may be needed. Specifically there is a difference in the social potential (social cognitive ability) of people with ASD and their social performance (mind reading in real life).

What does this mean on a real-life level? This new research suggests there is some other key piece of the social cognitive puzzle we have not yet explored. That key piece is **context.**

Perform Well on Tests, But Not in Real Life

We generally base treatment strategies on research. Yet, research alone doesn't accurately portray "real life" when ASD is involved. For instance, more able people with ASD perform rather well on tests for emotion recognition. They can learn to read faces, and they do well on even more advanced tests of ToM such as "reading the mind in the eyes." Yet in real life we see these same bright individuals struggle with social issues that neurotypical people seem to handle effortlessly. How can we reconcile these conflicting findings?

To answer this question let's first look at the differences between research-test environments and real-life situations.

Laboratory/Research Tests	Real Life
Off-line (artificial environment)	On-line (natural environment)
Decontextualized situation	Context-driven situation
Cued	Spontaneous
Rather slow: time to think	In the moment: little time to think
Conscious cognition	Unconscious cognition Fast intuition

The differences are significant. Proper research requires that the stimuli and tasks used in laboratories be "pure," meaning they are controllable, replicable, and therefore stripped from all confounding variables. While this is good for research, the controlled nature of such research makes any findings an abstraction of what happens in real life, and explains why a person with ASD may perform well on ToM tests but still struggle with real-life social situations. Real life is fluid; our social actions and reactions are dependent on a host of variables that can change at a moment's notice. Test materials for assessing social knowledge and social skills are decontextualized; they do not accurately assess social competency skills as they play out in real life. We must, therefore, use care when using these findings as a basis for treatment or services.

Contextual Processing
What is a nice birthday present for a good friend?
What do you do when the bell rings?
What do you put in your suitcase when you go traveling?

No doubt you can answer each of these questions. But what if you were asked to give the one and only correct answer? You would probably reply, "It all depends…." A nice birthday present for one of your friends could be quite inappropriate for another. The bell may be a signal to remove the cake from the oven, go to your next class, or exit a building because of fire. What you pack in your suitcase depends on the destination and length of your journey. A "correct" answer for all of these questions depends on the situation, and another word for situation is *context*.

The human brain, through its evolution, has learned to interpret situations by taking context into account. These basic processes occur within the first 50–400 milliseconds in the unconscious phases of information processing. For instance, neurotypical brains use the contextual information coming from the shadow of an object to quickly recognize that object. Studies using ERPs (event-related potentials) indicate many of these early, unconscious brain processes are affected in individuals with ASD.

On a conscious level context helps us think through how we should react and what choices, such as a birthday gift or a response, we should make. Context gives meaning to the stimuli our brains receive.

In the last two decades, research in a variety of disciplines, from philosophy to psychology to computer science, has revealed surprising, remarkable facts about the role of context in several aspects of human functioning. We now appreciate that a good sense of context contributes significantly to our adaptability and survival skills. Furthermore, contextual sensitivity plays out in different arenas, from sensory issues to language/communication to social skills. When we see someone raise his hand, it could mean the person wants to say something, is waving goodbye, or wants to stop a taxi. To cope with these ever changing meanings, the human brain developed a remarkable ability, *contextual sensitivity,* to unravel the inherent ambiguity of stimuli and respond appropriately to it.

Autism as Context Blindness
Research into the role of context in human information processing has revealed that contextual sensitivity is crucial in exactly those areas known to be affected in autism: social interaction, communication, and flexibility in thoughts and behavior. This has led to the hypothesis of *context blindness* as the common pathway in the cognitive deficits in autism. Interestingly, lack of contextual sensitivity can account for many of the cognitive assets in autism such as the ability to think logically without being disturbed by contextual elements (e.g., emotions).

Context blindness refers to a reduced spontaneous use of context when giving meaning to a stimulus. To put it more simply: the autistic brain thinks in an absolute way, rather than a relative, contextually defined way. Remember the scene in the movie, *Rain Man*, where Raymond is trying to cross a street? In Raymond's mind when the sign displays "Don't walk," it means only one thing: "Don't walk." We laugh when the sign changes from "Walk" to "Don't walk" and Raymond stops in the middle of the intersection. Raymond does not understand that "Don't walk" means many different things, depending on the situation or context. When you're halfway through the crossing, it means "hurry up" instead!

Here is another example of context blindness: When the doorbell rang, the mother of a seven-year-old boy with autism asked him to open the door. He opened the back door instead of the front. His reaction was logical, but his choice of door was out of context.

Contextual Sensitivity in Social Cognition
Emotion recognition training is immensely popular in the field of autism. Typical materials used in this training are photographs or pictures of facial expressions of emotions:

SAD   HAPPY   ANGRY

Although these materials can help children with autism learn about different emotions in a rote manner, they do not reflect emotion recognition as it happens in real life.

First, we rarely see faces out of context in real life. When we try to figure out what a person feels, we look at context as much as we do facial expression: the situation, what that person says, body language, our past experiences with similar situations, etc. In fact we don't even need a facial expression to recognize emotions. Even without a facial expression you certainly know how the man at right feels, based on the context. Studies on how people process facial expressions have shown that when we look at faces, our brains always spontaneously encode the context and that in certain instances, context plays an even bigger role in emotion recognition than the facial expression.

The second problem with traditional emotion recognition training is the underlying assumption that there is a direct relationship between an emotion and its facial expression. This assumption goes back to Darwin's idea of universal expression of emotions in which each emotion has its own distinct facial expression. Unfortunately for people with autism, facial expressions are not that straightforward and quite often are ambiguous. Take tears for instance. What do people feel when they have tears on their cheeks? It could mean sadness. But it could also mean happiness or pride. Or it could be an allergic reaction or the result of dicing an onion. How can a brain tell the difference? It uses context.

In recognizing emotions—the same is true for all mental states—the human brain relies on context. When people with autism find it hard to empathize, it is because their brain lacks contextual sensitivity. They are affected by context blindness, rather than mind blindness.

Teach Contextual Sensitivity

We can teach people with ASD a lot of rules and scripts, but for social understanding and competence to flourish, scripts and rules are insufficient. To effectively teach emotion recognition and social understanding to people with ASD, we must add context to the materials we teach. Even using a term such as "socially appropriate behavior" becomes misleading unless context is specified; behavior that is socially appropriate in one situation might be inappropriate in another context!

Social competence is not about knowing whether a certain behavior is socially appropriate or not; it is the knowledge of when that behavior is appropriate and *when it is not.* Research

has shown that more able people with ASD know quite a lot of social rules, but they have difficulty adapting these rules to changing contexts or making exceptions to the rules. Most social skill training programs focus on teaching *generic* social skills (e.g., how to start a conversation). However, having a conversation while waiting in the dentist's waiting room or visiting someone at the hospital is quite different from the conversation you have hanging out with a group of buddies because the contexts are very different.

Instead of putting our focus on teaching social skills, we should focus on teaching social contexts such as visiting someone at the hospital or hanging out with friends. And then teach all the necessary rules, conversation, and behavior attached to a certain context. When you visit someone who is ill and in the hospital, what kind of present do you take? How long do you stay? What do you talk about? What should you say/not say?

The same logic about context applies to Social Stories™, a powerful tool to help people with autism navigate the social world. Instead of creating stories about certain social skills, we should build them around contexts and introduce sentences that start with *if* and *when*. In this manner a story can be adapted to different contexts. For instance, a social story about welcoming guests to your birthday party could contain the following contextual sentences:

- When the person who arrives is a close family member, you kiss them and say "hi."
- When the person who arrives is not a close family member, you shake hands and say "hi."

Social competence requires more than social skills; it demands contextual sensitivity—something difficult for people with ASD. Training programs designed to help people with ASD navigate the social world should therefore emphasize social contexts, not just focus on teaching social skills. ■

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