

The Role of

# Sensory Perceptual Differences in Autism

The Intense World  
Syndrome and  
Other Sensory  
Theories

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Over the past two decades, research studies have provided evidence that autistic individuals have a range of perceptual processing differences. Several “sensory theories of autism” have been proposed to explain these differences, including sensory gating deficit/gestalt perception, neuropathology of cortical inhibitory interneurons, and an imbalance of cortical excitation and inhibition.<sup>1,2,3</sup>

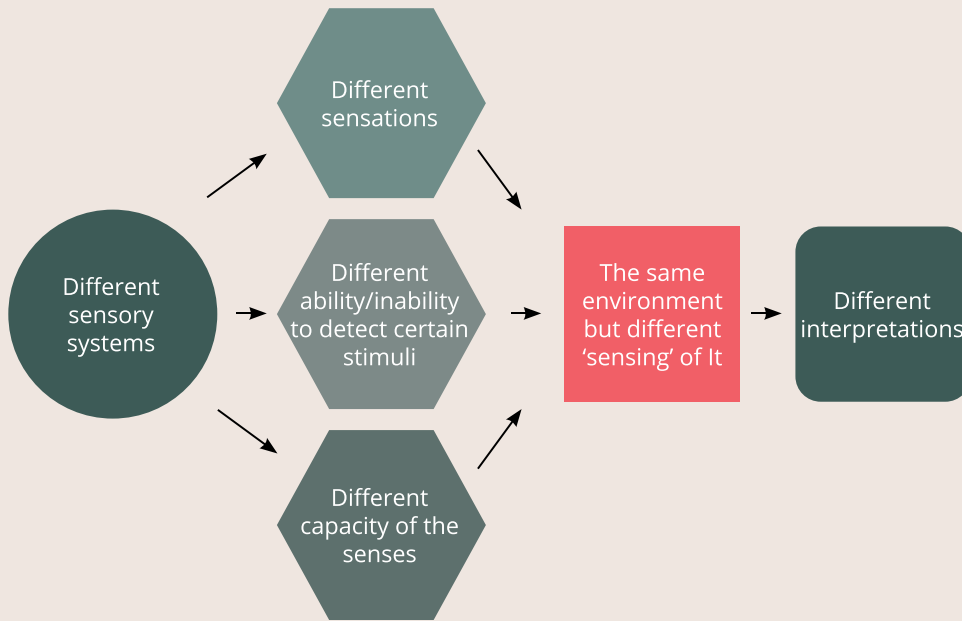
## “Intense World Syndrome”

One interpretation of autism involves “intense world syndrome.”<sup>4</sup> It suggests that autistic people may perceive their surroundings as overwhelmingly intense, and as aversive and highly stressful. This is due to hyperreactivity of sensory areas, as well as a hyperreactive amygdala that makes quick and powerful fear associations with stimuli that are usually neutral. In this view, autism is characterized by hyperfunctionality as opposed to hypofunctionality, as is often assumed. The researchers show how excessive neuronal processing leads to heightened or excessive perception, attention and memory.

Hyperreactivity and hyperplasticity mean that the smallest units of the brain capable of processing information, or minicolumns, have a capacity for processing information that is higher than normal. Excessive processing of the sensory input in the microcircuits leads, in turn, to exaggerated perception, which produces extremely intense images, sounds, smells and so on. This sensory overload, combined with an inability to filter information that is known as Gestalt perception, causes autistic children to withdraw and miss the opportunity to develop shared conceptual understanding of the world. Under this interpretation of autism, impaired social interactions and withdrawal are seen as the *consequences* and not the core features of autism.

Bob Morris develops this argument further.<sup>5</sup> He shows that the attempted use of different sensory mechanisms by a baby, without any help from a perceptive caregiver to sort out and deal with these differences in both problems and abilities, may aggravate the condition. The earlier the caregiver understands the differences and accommodates the person with the appropriate intervention, the more likely the individual will become fully functional but *significantly different in talents and thinking*.





## Parallel Sensory Perceptual Worlds

I prefer the metaphor of Parallel Sensory Perceptual Worlds, which unites all the sensory theories, to interpret autism. Though autistic people live in the same physical world and deal with the same “raw material,” their perceptual world turns out to be strikingly different from that of people without ASD. While their reality is based on real experiences, just as it is for people without autism, these experiences may look, sound or feel different, or be interpreted differently.

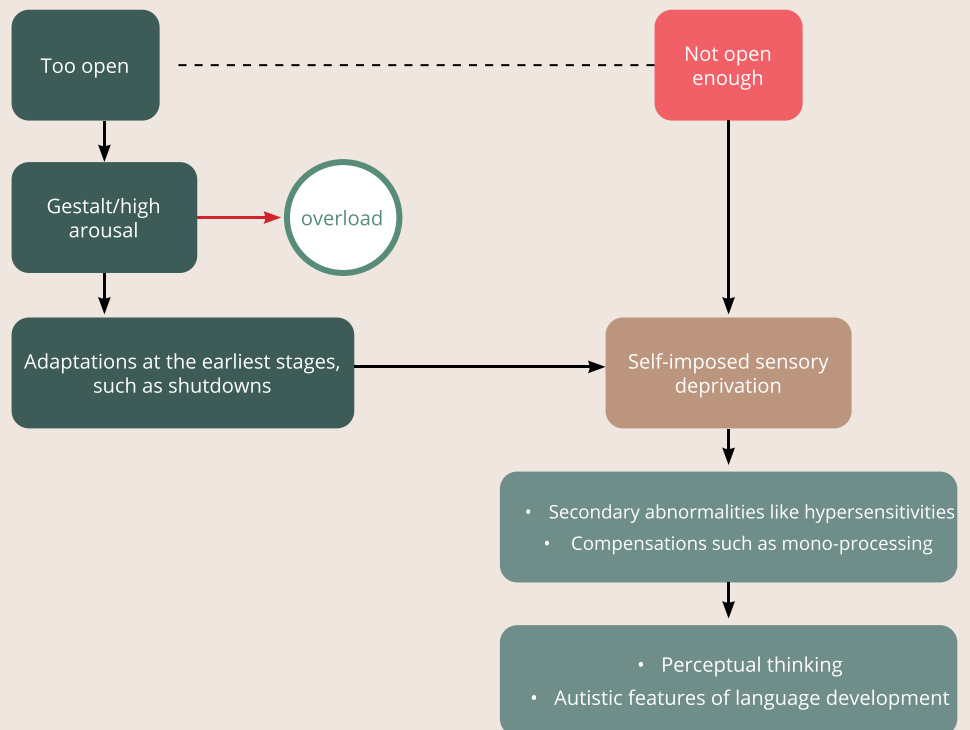
The way we think about the world is determined by the way in which we experience and perceive it. Different experiences bring different knowledge about the world. How can we be sure that we are moving in the same perceptual or social world if our reconstructions of it are so different? Is there any way of knowing if our perceptual version of the world is correct and theirs is wrong?

## Sensory Overload

While some autistic individuals are able to perceive more than the average neurotypical person, this ability comes with a price. They are easily overloaded in ‘normal’ situations, and their cognitive and language development follows a different route, which leads to problems with social interaction and communication. In addition, the world they know, or construct, is very different from the conventional one.

## Sensory Deprivation

The absence of filters can lead to sensory flooding, and may result in sensory deprivation with serious long-term consequences. In fact, if such deprivation goes on for 20 hours or more, it can cause long-lasting psychological damage such as post-traumatic stress disorder.<sup>6</sup> Two different scenarios are possible that both lead to sensory deprivation. Autistic individuals’ senses seem to be either too open, and have no filters, or to not be open enough and thus not allow in enough sensory stimulation. The former results in defensive adaptations, such as system shutdowns. In such situations, children shut down their senses to avoid painful experiences. This, in turn, leads to self-imposed sensory deprivation.



## Importance of Identifying Sensory Perceptual Differences

It is important to note that no two autistic individuals have exactly the same patterns of sensory perceptual experiences. Although the manifestations of sensory perceptual differences vary in different people or even in the same person at different ages, it is possible to establish common features and to identify compensatory strategies and adaptations.

Gaining a better understanding of sensory processing in autism will assist in improving diagnostic instruments, including diagnosis in very young children. It will also help in distinguishing sensory perceptual subtypes of autistic individuals and in providing assistance that is appropriate for the needs of each particular child.

In autism, any of the senses — or a combination of the senses — can be affected. This brings differences in interpretation and conceptualization of the environment in which those with autism live. In order to both live in the same perceptual world and move in the same direction, we have to learn how to switch from a focus on our perspective to one that considers their perspective.

Those who live and work with autistic children have to learn to shift their mindset and imagine what the world is like from the child's perspective in order to join the child on his or her territory. While our "normal" sensory functioning can make this task difficult, it is vital to always consider how the child sees, hears and feels the world.



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