Nonverbal Social Behaviors Present in Individuals With Autism Spectrum Disorder

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Abstract

This paper's main focus is to evaluate the nonverbal social behaviors found in individuals with Autism Spectrum Disorder (ASD). Autism is a brain disorder, shown at an early age, that causes a lack of communication skills as well as trouble forming relationships with other people. Those with ASD mainly struggle with creating as well as reading facial expressions, thus, making it difficult to grasp emotion in a conversation. As nonverbal communication, like reading facial expressions, is a key factor to building emotional connections, I decided to focus my research on the nonverbal social behaviors present in those with Autism compared to individuals that are typically developed. This focus was then narrowed down into three subcategories: creation of facial expressions, reading facial expressions, and how a more social environment can improve social skills in those with ASD. Using *Blink,* Paul Ekman's "unmasking of the face", and other studies, I was able to see the neurological differences between ASD and TD individuals, thus, further explaining why those on the spectrum suffer from communication skills. Along with this, I was able to see the clear differences in common facial expressions produced by those with ASD and in what context they came about. Therefore, my research is devoted to the better understanding of the brain deficiency that affects the nonverbal communication skills present in individuals that are diagnosed with Autism Spectrum Disorder.

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In Malcolm Gladwell's book *Blink*, the truth behind how people think and communicate with others is uncovered. Throughout the novel, Gladwell, using various studies, discusses various types of nonverbal communication and its importance in our social behaviors. One of the most prominent forms of this nonverbal communication is both producing and reading facial expressions. Yet, the ability to read and understand these nonverbal cues becomes a challenge for those with brain disorders. Although neurological impairments are impossible to fix, more exposure to social environments can help increase the nonverbal communication skills in individuals with Autism Spectrum Disorder.

Facial expressions are the most basic form of nonverbal communication, allowing people to understand what someone is thinking or feeling without having to say a word. These expressions can be made both voluntarily and involuntarily; however, "our voluntary expressive system is the way we intentionally signal our emotions. But our involuntary expressive system is in many ways even more important: it is the way we have been equipped by evolution to signal our authentic feelings" (Gladwell, 2005, p. 210). Paul Ekman is responsible for the true unmasking of the face. In a study conducted by Ekman and his collaborator, Wallace Friesen, they observed various medical textbooks that outlined the facial muscles, leading to the conclusion that there were forty-three distinct muscular movements in the face that create expression. From there, they studied how these muscles worked together to portray emotions such as happiness, sadness, and anger (Gladwell, 2005, p. 201). These rules for reading and interpreting these facial expressions are known as FACS, or Facial Action Coding System, which help psychologists take a closer look at nonverbal emotions and how they vary with those who

struggle with communication disorders. By being able to understand and interpret the various facial expressions along with the emotions that correspond to them, humans are able to both read and produce these emotions as a form of communication.

For those that suffer with Autism Spectrum Disorder (ASD), producing facial expressions is much more challenging than those that are typically developed (TD). In a recent study, conducted by Emily Zane and her colleagues, the differences between spontaneous expressions created by both children with ASD and those that are TD was observed. They video recorded the spontaneous responses of children between the ages of 10 and 17 with and without ASD as they watched emotionally triggering films in a non-social context. The results found that:

> Adolescents with ASD displayed more intense, frequent, and varied spontaneous facial expressions than their TD peers. They also produced significantly more emotional vocalizations, including laughter. Individuals with ASD may display their emotions more frequently and more intensely than TD individuals when they are unencumbered by social pressure. Differences in the interpretation of the social setting and/or understanding of emotional display rules may also contribute to differences in emotional behaviors between groups. (Zane, Neumeyer, Mertens, Chugg, & Grossman, 2017, abstract)

This study shows how nonverbal communication skills between children with ASD and those with TD greatly differ not only by what facial expressions are used but by how often they come about and how intense they are. Therefore, this causes a deficit in simple nonverbal communication for those suffering with ASD due to the differences in how their brain tells them what to show on their face and when.This causes the more intense and, what some may describe, unnecessary facial expressions that fail to coincide with the mood of a conversation. Along with

this, these expressions are also altered for those with ASD when they undergo social pressure. As social interactions are already difficult for those on the spectrum, facial expressions may be even more skewed in an uncomfortable situation. For those that are deemed typically developed (TD), these social environments do not impact that at such a level, allowing them to act appropriately when displaying emotions on their face. Therefore, children and individuals with Autism Spectrum Disorder find themselves producing unnecessary, intense, and highly frequent facial expressions which cause trouble in their nonverbal communication skills.

Those who suffer from autism also have difficulty picking up on nonverbal cues and basic gestures that give TD individuals the ability to understand what people are feeling and what they're trying to communicate. This is also known as a term coined from psychologist Simon Baron-Cohen called 'mind-blindness'. For many, it is a natural human process to make quick observations on nonverbal actions and be able to know and interpret what an individual is thinking or feeling just by the expression on their face. However, those that struggle from ASD find it difficult to place themselves in someone else's shoes and truly understand and sympathize with the emotions that others are feeling (Gladwell, 2005, p. 214). According to Gladwell (2005), "their first-impression apparatus is fundamentally disabled, and the way that people with autism see the world gives us a very good sense of what happens when our mind-reading faculties fail" (p. 214). Gladwell, along with the insight of various studies and psychologists, is able to show, on the neural level, why people with Autism Spectrum Disorder struggle greatly with basic social skills. Without the ability to mind-read and pick up on nonverbal cues, people with ASD find it much harder to relate to others and understand the general tone of conversations.

These struggles in communication can also be explained by the various differences in the neural processes that those with ASD go through in order to identify people and objects compared to TD individuals. For the normally developed, two different parts of the brain are used for either identifying a person or an object; however, the same part of the brain is used for both people and objects for people with Autism. This can be explained in an experiment conducted by Ami Klin, a professor at Yale University. Using an FMRI (functional magnetic resonance imagery) brain scanner, Klin could observe what parts of the brain blood would flow to when both ASD and TD subjects would identify pairs of faces and objects (Gladwell, 2005, p. 218). The results found that, when identifying a person, TD subjects exercised their fusiform gyrus (reserved for people to read facial expressions). When identifying objects, they used their inferior temporal gyrus portion of the brain. However, for those with Autism, the fusiform gyrus is used in both facial recognition and object identification (Gladwell, 2005, p. 219). For most people, the brain reserves a more powerful portion of the brain to recall specific faces and facial expressions. The less powerful area is more basic uses, like identifying objects. Unfortunately, for ASD individuals use the less powerful portion of the brain for both people and inanimate objects. With that being known, it can be concluded that the lack of differentiation between the importance of objects versus humans can lead to clear struggles in facial expression recognition along with a lack of connection of emotions within conversations for those with Autism.

With a difference in neural functions when differentiating between objects and humans, those with Autism struggle to understand tone and emotion within conversations. As it was earlier discussed, the level of interest between humans and objects is almost equal inside the mind of someone with ASD, causing them to miss human signals of emotion. In a study

conducted by Robert T. Schultz, he took a deeper look into what really goes on in the mind of someone with autism during social interactions. His test subject, Peter, was a highly intelligent, forty-year-old man with autism. Schultz had Peter watch an important scene in *Who's Afraid of Virginia Woolf?,* where the main character, George, is about to fire a gun at Martha, but an umbrella pops out the front instead. For most typically developed individuals, there is clear suspense and tension leading up to the firing of the gun, causing a genuine emotion of fear. However, for Peter, this was not the case. Schultz explains, "one of the most telltale things is that the classic autistic individual will laugh out loud and find it to be this moment of real physical comedy. They've missed the emotional basis for the act. They read only the superficial aspect that he pulls the trigger, an umbrella pops out, and they walk away thinking, those people were having a good time" (Gladwell, 2005, p. 220-221). In an emotionally gripping scene, like the one in *Who's Afraid of Virginia Woolf?,* most individuals are able to read both the expressions on Martha and George's faces to understand the anger and tension between the two characters. Unfortunately, for those with Autism, the "mind-blindness" they have strips them from the ability to understand what is going on through each character's mind and fully grasp the true meaning of the scene. Therefore, in many, foreign, social situations, those with ASD tend to struggle due to the emotional disconnect.

Although those with ASD deal with differences in neurological functions, an exposure to a more social environment can help improve facial-expression reading and communication skills. This can be seen in a recent study conducted by Ester

Figure 1: Mean Communication Scores For ASD children with and without sibling/s

	With older siblings M (SD)	Without siblings M (SD)
ADOS- CSS		
SA^	6.1 (2.1)	7.3 (2.2)
RRB^^	7.9 (1.8)	8.1 (1.8)
ADI-R		
Social interaction	15.7 (6.2)	17.2 (7.2)
Communication	9.0 (3.3)	10.5 (3.6)
RRB	4.0 (1.7)	4.4 (1.9)

ADOS CSS and ADI-R subdomain score percentages representing severe social communication differences.

Ben-Itzchak and his colleagues, where they observed the social skills of 112 ASD children in families with both other siblings and no siblings, taking note of the severity of their autism symptoms such as ADOS-CSS (Autism Diagnostic Observation Schedule- Calibrated Severity Scales) and ADI-R (Autism Diagnostic Interview- Revised) after several standardized tests (Ben-Itzchak, Zukerman, & Zachor, 2016, pg. 1615). The results found that, "the group with older sibling/s showed lower scores in comparison to the group without sibling/s" (Ben-Itzchak ET AL., 2016, pg. 1616). The results from this study are shown in Figure 1, proving that in every social deficit category, ASD children without siblings had higher percentage of severity compared to those that had one or more older siblings. It is clear that, for even typically developed children, families have a major impact on one's social behaviors. With respect to children with ASD, they are already at a deficit. Therefore, those that are exposed to more social interactions due to an older sibling, autistic children can develop more typical social skills at a younger age, thus, decreasing the severity of their differences in communication and "mind-reading."

Autism Spectrum Disorder is not entirely curable, however, an exposure to more social interactions can help to improve the social struggles that they face. With clear neurological differences between ASD and TD individuals, those with ASD have trouble "unmasking the face", thus, creating deficits in their nonverbal communication and social behaviors. Nonetheless, the brain is a powerful organ that can be trained. For many suffering from ASD, families play a major role in training their social behaviors at a young age. Therefore, training the brain in more social environments can help to combat social deficits seen in those suffering from ASD.

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