

Characteristics of Individuals with Autism Spectrum Disorder: Supporting Increased Eye
Contact

Caitlyn Cherry

A Senior Thesis submitted in partial fulfillment
of the requirements for graduation
in the Honors Program
Liberty University
Spring 2021

Acceptance of Senior Honors Thesis

This Senior Honors Thesis is accepted in partial fulfillment of the requirements for graduation from the Honors Program of Liberty University.

Lucinda Spaulding, Ph.D.
Thesis Chair

Randall Dunn, Ed. D.
Committee Member

Marilyn Gadowski, Ph.D.
Honors Assistant Director

Date

Abstract

One of the most beautiful realities is the fact that no two people on this earth are exactly the same. Everyone has their own unique fingerprint, experiences, personality, strengths, and weaknesses. For people with Autism Spectrum Disorder, the same concept applies. Each case is different because each child is different. While this is inherently true, research shows that many people with ASD struggle with the same or similar social skills, with lack of eye contact being a prevalent issue. This social deficit will inherently affect individual's ability to read social cues, regulate real world interactions, make connections, build intimate relationships with others, and possibly succeed in a future occupation. There is a need to inform of the different characteristics of an individual with ASD; provide family members, teachers, and caregivers an understanding of the challenges that individuals with ASD experience with eye contact in order to develop a sensitivity towards the individual; expand on the importance of increasing skill with eye contact; and to provide evidence-based strategies to support the increase of eye contact in individuals with ASD. While eye contact may seem to be an insignificant skill to focus on, it opens the door to relational, occupational, and social learning opportunities.

Characteristics of Individuals with Autism Spectrum Disorder:

Supporting Increased Eye Contact

Individuals with autism spectrum disorder (ASD) experience a unique set of challenges on a daily basis that the neurotypical person cannot fully comprehend or relate to. One basic function that numerous individuals with ASD struggle with is eye contact. An inability to maintain eye contact is an obstacle in regard to building relationships (Wedmore, 2011), regulating real world social interactions (Trevisan, 2017), and acquiring occupational opportunities (Freeth et al., 2013). The purpose of this thesis is to inform of the basic characteristics of an individual with ASD, while expanding on the function of eye contact; to present different perspectives on the term *disability*; to advise readers on the possible emotional and psychological strain of eye contact; to examine possible theories that explain atypical eye contact in individuals with ASD; to present three problems that may stem from avoiding eye contact; to determine the purpose and consider the ethics of requiring eye contact; and to provide researched recommendations for supporting improved eye contact in students with ASD.

Characteristics of ASD

“Autism spectrum disorder is defined by two core symptoms: a deficit in social communication and the presence of repetitive behaviors and/or restrictive interests” (Frye, 2018, p. 1). These two core symptoms, however, are made up of a variety of abnormalities in social function and social communication present in people with ASD. While every child with ASD is unique and requires an individualized set of supports, there are several characteristics that most children with ASD share, including challenges

or deficits in fundamental movement skills, fine motor skills, the function of action prediction and estimation, and a range of social skills including avoidance of eye contact (Frye, 2018).

Fundamental Movement Skills

One of the most prevalent functional skills that individuals with ASD struggle with are the fundamental movement skills: “basic movement skills (balance, object control, and locomotor skills) that form the foundation for more advanced movement patterns” (Gandotra et al., 2020, p. 1). To elaborate, balance refers to a person’s ability to distribute weight evenly; object control involves handling any object using either the hands or the feet; and locomotor skills involves moving the body in different ways or from one place to the other (Gandotra, 2020). In regard to the fundamental movement skill of balance, an early study measured the weight distribution of participants with ASD and that of typically developing individuals (aged 6-20 years) while standing on both stable and unstable surfaces. The “autistic participants were generally less stable in their posture, and typically exhibited a tendency to put most of their weight on one heel/toe” (Cook, 2016, 3). This delayed postural control is typical in individuals with autism, even as they transition into adulthood (Cook, 2016).

Fine Motor Skills

When compared to typically developing individuals, children and adults with autism have difficulty with fine motor control. These skills refer to a person’s ability to make fine motor hand movements that typically require operating an object (Choi et al., 2018). Such abnormalities are specifically shown through their handwriting, and longer

preparation and execution times with certain arm movements. However, many students with fine motor control delay also can exhibit difficulties in performing daily activities such as grasping on to toys, twisting doorknobs, and brushing their teeth. The most common type of developmental delay that affects students in the classroom, however, is their writing ability (Cook, 2016).

Understanding Poor Fine Motor and Fundamental Movement Skills

Researchers have examined why individuals with ASD struggle with the socio-cognitive function of action, prediction, estimation, and imitation of typically developing individuals. Since individuals with autism move differently than typically developing individuals, “socio-cognitive tasks such as perceiving, predicting and interpreting others may be more difficult between people who move differently compared with those who move similarly” (Cook, 2016, p. 6). Those with ASD are born with their motor abnormalities; therefore, it is all they have ever known, and it is basically all that they ever see. Since this is the way that they normally move, it is difficult for them to imitate movements that they do not typically exhibit themselves. This theory forms a basis for understanding why it is difficult for individuals with ASD when performing basic fundamental movement and fine motor skills (Cook, 2016).

Talented and Gifted

While there are many factors of ASD that make life exceptionally more difficult, some children with ASD are also considered gifted students. While it is easy to conclude that a disability and giftedness cannot co-exist, they are not mutually exclusive. When students have been determined as having both autism and giftedness, then they are

considered as being *twice exceptional (2e)*. The estimated rate of this co-occurrence in children is about 0.7% up to 2%. A distinct feature of *twice exceptionality* is the *mutually camouflaging effect*, meaning that oftentimes the characteristics of the two can mask each other, making diagnosis much more difficult (Burger-Veltmeijer & Minnaert, 2011).

Fortunately, as more research is being done, professionals are able to distinguish among the characteristics and more consistently diagnose ASD, giftedness, and twice-exceptionality in children and adults (Assouline, 2008).

Social Skills

A crucial defining factor that can have adverse effects on an individual with ASD is deficits in social skills. Individuals with ASD oftentimes display a variety of deficits in social skill development at an early age. Such atypicalities include the following: fewer pointing and showing behaviors, reduced amount of time looking at people, infrequent response to their name being called, and more repetitive motor movements. In fact, “one of the most consistent social deficits in children who develop ASD is a lack of non-verbal social gestures such as pointing, showing, and giving” (Frye, 2018, p.4). Pointing typically starts developing around 8 months of age and is the foundation for a majority of gestures that routinely develop by 12 months. Children use pointing gestures to indicate that they want something, to share an experience with another person, or to show or give something to someone. These gestures are generally absent in individuals with ASD. Secondly, while language is not noticeably abnormal in many individuals with ASD, a person with ASD may also show abnormalities in particular components of language, such as “poor inference and comprehension of narrative” (Freeth et al., 2018, p. 4).

Introduction to Eye Contact Atypicality

While the previously mentioned characteristics are all distinct features of individuals with ASD, a unique social atypicality that cannot be overlooked is eye contact. “Atypical responses to direct gaze are one of the most characteristic hallmarks of autism spectrum disorder” (Madipakkam et al., 2017, p. 1). These atypical responses develop at an early age in those with the disorder, and oftentimes persist into adulthood. In fact, “an inhibited tendency to look at and follow the eyes of an adult are some of the earliest indicators of an impending ASD diagnosis” (Trevisan et al., 2017, p. 2). Prior to elaborating on aversion of eye contact in individuals with ASD, it’s important to first understand the views on the term *disability* (Grover, 2021).

Conceptual Models of Disability

Various conceptual models are used to define different perspectives on the term *disability*, to help one understand the impact of disability, and to inform of the characteristics unique to a person with a disability. While there are many models of disability, the most common include the *individual/medical model*, the *social model*, and the *biopsychological model* (Grover, 2021).

Medical Model

In the *medical model*, disability is viewed as “an attribute of an individual health condition” (Grover, 2021, p. 2) and a deficit that must and can be cured by medicine. Grover (2021) gave an example comparing an individual with cancer to an individual with hearing loss. According to the model, both individuals would be considered disabled. While this specific model does result in the person with the disability qualifying

for supports and accommodations, it also leads to “stigmatization, impoverishment, and institutionalization of many individuals with pathologies” (Grover, 2021, p. 3). Finally, the *medical model* has a negative view towards a person with a disability, claiming it is their problem and the only way they can be viewed as “normal” in society is through professional aid (McCain, 2017).

Social Model

However, for the *social model*, “disability is a product of environment” (Grover, 2021, p. 2), claiming that an individual with a disability is not disabled by the disability itself. For example, a person with a hearing loss is not disabled by the hearing loss. Instead, the model describes that a person’s disability is due to a lack of accommodations provided in their environment (Grover, 2021). The social model also emphasizes that a disability is a difference in a person, just like their gender, age, ethnicity, and race. Finally, this model supports the idea that a disability is just a part of who the person is; a disability is not negative and does not make an individual with a disability of lesser value than any other person in society (McCain, 2017).

Biopsychological Model

A third model, the *biopsychological model*, combines the *medical model* and the *social model*, concluding that disability is a result of individual-environment interaction. This model grew popular as it became clear that disability was not strictly medical nor a strictly social concept. This model supports the idea that disability is a result of both the individual and the environment. As more research was done, the term disability was classified into three domains: impairment, disability, and handicap. Impairments were

defined as “abnormalities of body structure, appearance, and/or organ system and function” (Grover, 2021, p. 4), disabilities were defined as “as the consequences of impairments in terms of functional performance and activity of the individual” (Grover, 2021, p. 4), and handicaps were defined as “the disadvantages experienced by the individual as a result of impairments and disabilities” (Grover, 2021, p. 4). This model ascribes to the idea that both health conditions and contextual factors contribute to and define the term *disability* (Grover, 2021).

Comparison of Models

When comparing models, the *medical model* has ultimately led to the stigmatization that there is something wrong with individuals who have a disability and that they need to be fixed. This model also emphasizes that people with a disability should not be surprised when they are not welcome in society or able to participate in it. Such negative messages have the ability to be internalized by people with disabilities, causing them to think less of themselves. However, the *social model* sends the message that it is society’s responsibility to create an all-inclusive environment and implement accommodations that allow for equal participation. If society would learn to view disability more through the lens of the social model, then more individuals will see their disabilities in a positive light instead of believing that their disability ostracizes them from success in society (McCain, 2017). Eventually, researchers began to discover that disability is a result of both the individual and the environment, ascribing more toward the *biopsychological model*, a combination of both the social and medical models. Therefore, while there are valid medical reasons that cause deficits in an individual with a

disability, there are also social, contextual and environmental factors that contribute.

Ascribing to this perspective, responsibility lies with society and the individual to work together towards creating an all-inclusive environment (Grover, 2021).

ASD and Eye Contact: Self-Reported Experiences and Theories

After gaining insight on the models of disability, the next step is developing empathy by gaining a better understanding of how individuals with ASD experience eye contact on a daily basis. In order to work towards creating and implementing methods that are effective, a teacher, professional, parent, or caretaker must first be informed and understand why eye contact is a struggle for many individuals with ASD, and how it often makes them feel. It is important to consider the emotional and psychological strain that direct eye contact can have on an individual with ASD, as well as develop an understanding of theories that help further explain atypical eye contact in individuals with ASD (Trevisan et al., 2017).

The Common Effects of Eye Contact on an Individual with ASD

In order to broaden perspectives and better understand atypical eye contact in ASD, it is helpful to examine the real-life experiences of eye contact in people with ASD and incorporate their voices into the research. In a study by Trevisan (2017), researchers used qualitative methods to analyze self-reported experiences with eye contact in individuals with ASD. Based on the participant's responses, there were five main themes presented: adverse reactions, invasion, sensory overload, social nuances, and inaccurate readings of nonverbal communication (Trevisan et al., 2017). The following are self-

reported experiences of individuals with ASD's self-reported experiences regarding eye contact:

Adverse Reactions

Fear/Anxiety. "Making eye contact feels sort of like a first breath one takes under water using scuba gear, where there's this moment of panic as your body says, "No, no, you'll drown!" (Trevisan et al., 2017, p. 8).

Psychological Reaction. "If I am forced to make eye contact, my body becomes tense, my skin tingles, my jawline becomes somewhat numb" (Trevisan et al., 2017, p. 8).

Pain. "Eye contact is physically painful" (Trevisan et al., 2017, p. 9).

Invasion

Violation. "It makes me feel naked, exposed. Weak if you will. It's very uncomfortable" (Trevisan et al., 2017, p. 9).

Intimacy. "Eye contact is inherently uncomfortable for me, that I can only achieve with those whom I have a degree of intimacy or trust with" (Trevisan et al., 2017, p. 10).

Sensory Overload

Physically Draining. "For me [eye contact] feels like I'm using up a lot of energy. The longest I can stare at someone in the eye is from less than 2 to 6 seconds at the most. Then it gets tiring" (Trevisan et al., 2017, p. 10).

Audiovisual Integration. "I can't concentrate while making eye contact, particularly if I need to listen to what the other person is saying to me. It's like I need to

shut off the visual input in order to completely process the aural input” (Trevisan et al., 2017, p. 11).

Social Nuances

Unsure about Appropriate use of Eye Contact. “My big problem for a very long time, and probably still, is to determine how much eye contact is appropriate” (Trevisan et al., 2017, p. 11)

Feels unnatural. “I don’t do much eye contact because it doesn’t come naturally to me. I don’t really know the appropriate timing, and I feel at risk of staring for too long, which could be taken as threat-stare or a sexual stare” (Trevisan et al., 2017, p. 12).

Embarrassment. “I find eye contact embarrassing unless I know the person/people well. It makes me feel flustered and I start blushing” (Trevisan et al., 2017, p. 12).

Nonverbal Communication

Difficulties Reading Information from the Eyes. “My lack of eye-contact started off as the result of confusing social cues. I did not want to look at people who communicated very heavily with their eyes because it was difficult for me to understand” (Trevisan, et al., 2017 p. 12).

Inaccurate Nonverbal Sending. “If people don’t see my face, then I can’t send them unintentional signals...So whenever I’m talking to people that know me, I try my absolute hardest to make sure they don’t see my face” (Trevisan et al., 2017 p. 12).

Theories Explaining Eye Contact Aversion in Individuals with ASD

Specific to explaining atypical eye contact in individuals with ASD, Trevisan (2017) summarized three existing theoretical models. One theory, called the *hyperarousal/gaze aversion model*, suggests that people with ASD avoid eye contact with others because it negatively arouses them. This theory implies that eye contact is purposely avoided since it creates intrinsic negative feelings. In support of this model, researchers observed a hyperarousal in the limbic regions of the brain when individuals with ASD would look at the eyes of faces (Trevisan et al., 2017). A similar study concluded that children with ASD show higher levels of negative arousal when viewing a face with direct gaze in comparison to looking at a face stimulus with a diverted gaze. While these findings help one better understand atypical eye contact in individuals with ASD, this theory does not explain all instances of eye contact avoidance (Trevisan et al., 2017).

Another important theory to note is the *hypoarousal/social motivation model*, which states that “the amygdala fails to prioritize information in the environment, and as a result, stimuli like faces and eyes are not preferentially attended to in ASD” (Trevisan et al. 2017, p. 3). This theory suggests that social information is less rewarding to individuals with ASD than it is to TD individuals. Since eye contact is not usually attached to positive social experiences for individuals with ASD, they have no conditioned motivation to seek it out. However, this same study found that when individuals with ASD are forced to make eye contact, some components of social brain function can be improved or normalized (Trevisan et al., 2017).

The final theory examined regarding atypical eye contact in ASD is the *mindblindness framework*. This theory suggests “individuals with ASD are born without an innate module that promotes sharing attentional states with others based on information from their eye gaze” (Trevisan et al., 2017, p. 3). To elaborate, this theory implies individuals with ASD are not able to determine the intentions, beliefs and mental states of others through mutual eye contact. Therefore, since they are unable to read and understand the social cues depicted with the eyes, they are less motivated to make eye contact since it is viewed as pointless (Trevisan et al., 2017).

While each of the theories provide important information and proposed explanations for atypical eye contact in individuals with ASD, a complete understanding remains unclear, as there are many factors that can contribute to these abnormalities. For instance, the theories described above were drawn from a tightly controlled environment. Therefore, it is reasonable to infer that a real-life setting may change the outcome of a situation. However, such findings are an important step to better understanding the atypicality of eye contact in individuals with ASD (Trevisan et al., 2017).

Individuals with ASD and Aversion to Eye Contact

After developing empathy and understanding towards an individual with ASD and their aversion to eye contact, it is appropriate to now build an understanding of the research behind aversion of eye contact and the rewards of encouraging the development of eye contact in individuals with ASD. In a study conducted by the Yale Child Study Center in New Haven, Connecticut, researchers tried to discover whether the amount of eye contact made by children with autism was different from the amount of eye contact

made by other children (Kennedy, 2008). The participants in this study were 66 two-year olds: 15 of them had ASD, 36 were normally functioning children, and 15 of the children had developmental delays. After showing the toddlers 10 short videos of actresses looking in the camera and attempting to engage them in a variety of interactive games, researchers found that children with ASD “spent 24% less time focused on the women’s eyes and 14% more time focused on their mouths” (Kennedy, 2008, p. 1). In conclusion, there was a direct correlation between avoidance of eye contact and the child’s social abilities. Those toddlers who engaged in eye contact more were consistently the toddlers with developed social abilities. Further, eye contact not only affects children with ASD, but most adults with ASD are also uncomfortable with this direct gaze between two individuals (Kennedy, 2008).

A similar study found that individuals with ASD consistently show atypical responses to direct gaze; they completely avoid mutual eye contact between them and another individual. This specific deficit in social interaction typically develops early in individuals with ASD, and a fixed underlying cause of eye contact avoidance is yet to be defined. However, researchers were still very curious to discover if an individual with ASD preferred one gaze over the other (direct vs. averted). To determine whether or not an atypical response to direct gaze is contingent on the awareness of the other person’s face, researchers (Madipakkam et al., 2017) recorded eye movements from fourteen participants with ASD and twenty typical development (TD) participants who were the same age and sex. During the observation, the researchers recorded the participants as they searched for faces with different gaze directions that were not consciously

recognized. These observations were assessed based on trial-by-trial method using both subjective and objective measures. A preference for either one was based on the number of eye movements made to a particular stimulus (positive values indicated a preference for direct gaze while negative values for averted gaze). Based on their findings, the TD group showed a remarkable preference to the face with a direct gaze; however, the participants with ASD exhibited a negative preference index, meaning that they unconsciously avoided the face with the direct gaze. This study is the first to provide direct evidence for the unconscious avoidance of eye contact in people with ASD (Madipakkam et al., 2017).

Based on these results, individuals with ASD are seemingly unaware that they avoid making direct eye contact with others. These studies confirm that eye contact does not come naturally to people with ASD, making it more difficult to teach them how to be consistent in giving others the appropriate amount of eye contact during interactions. This social deficit will affect these individuals' ability to read social cues, regulate real world interactions, make connections, build intimate relationships with others, and possibly succeed in a future occupation (Madipakkam et al., 2017).

Eye Contact: Social Cues and Regulating Real World Interactions

While verbal communication is the primary way that individuals communicate, nonverbal communication, such as eye contact, plays a crucial role in social interactions and reading social cues. Nonverbal communication is specifically defined by a person's body language; however, people also use this type of communication to regularly send messages with their eyes. When people see a pair of eyes, they are typically able to gather

information about the other person's feelings, thoughts, and where their attention is directed (Cañigüeral & Hamilton, 2019). For example, individuals use their eyes to express a variety of emotions such as the following: joy, hurt, sadness, fear, annoyance, exhaustion, and many more. Another's eyes can give the observer signals to help them determine how they should respond during any given situation. Similarly, "social understanding is facilitated by effectively attending to the other person and the subtle cues they generate" (Freeth et al., 2013, p. 1). Therefore, an avoidance of eye contact will undoubtedly result in a failure to understand social cues—which are essential in understanding how to appropriately interact with and respond to others (Cañigüeral & Hamilton, 2019).

Secondly, individuals' directed gaze also signals their direction of attention—what or who they are looking at. During conversation, mutual eye contact infers that the person being talked to is engaged in the conversation. In order to show respect and attention to others when they are talking, it is also crucial to give them the same reciprocal eye contact, whether it is during an informal conversation, or in a formal setting where the speaker is talking to a crowd of people (Hietanen, 2018).

Another important function of eye gaze is its "regulatory function" during a conversation; this function allows individuals to regulate the turn-taking process in a conversation (Cañigüeral & Hamilton, 2019). Studies suggest that speakers use an averted gaze when they first start talking and when they hesitate; however, they directly gaze at the listener when they are about to complete their thought, indicating that it is the listener's turn to talk (Cañigüeral & Hamilton, 2019). On the contrary, the listener also

has a role in moderating turn-taking; one study suggested that right before listeners are ready to begin talking, they will make more “gestures, head shifts, and gaze shifts” (Cañigüeral & Hamilton, 2019, p. 8). While these signals are generally sent without awareness, learning appropriate eye contact in a conversation is the best way to cooperate in the turn-taking process (Cañigüeral & Hamilton, 2019).

Trevisan (2017) suggested that, “atypical eye contact can cause significant barriers and challenges for people with ASD for the purposes of regulating real-world social interactions” (p. 2). In rare occasions, eye contact can be utilized to inform those around someone who may feel threatened or uncomfortable in a situation. Since eyes have the ability to express an array of emotions, individuals who feels threatened by a person who is talking to them or approaching them, can send signals to others around them for help. If this emotional expression is accurately perceived, it has the power to anticipate important warning signals that could possibly save a life. It is likely that an individual with ASD will disregard this social cue, and also have a difficult time using their eyes as a resource to signal others if they ever feel uncomfortable or threatened in a situation (Caruana, et. al, 2019).

Eye Contact: Making Connections and Building Relationships

Not only is eye contact between individuals important in recognizing social cues, but it is also used to express intimacy with other people. Trevisan (2017) stated, “reciprocal eye contact is one of the most powerful and meaningful social interactions humans share” (p. 1). Eye contact is essential in making connections, building relationships, and emotional learning opportunities. One of the simplest ways to show a

person respect is to listen and make direct eye contact with them when they are speaking. The automatic response to being ignored is the belief that the listener does not care about what the speaker is saying (McKay, 2020). Therefore, eye gaze is not only a way to interpret social cues and real-world interactions, but it is also a crucial way to send certain signals to the observer. When eye contact is made with someone, connections form by showing them that they are being listened to (Cañigüeral & Hamilton, 2019). An avoidance of eye contact in individuals with ASD does not typically mean that they are not listening to what another person is talking about; in fact, they most likely have the ability to listen better when they do not feel pressured to give eye contact (Stewart, 2010). However, it is reasonable to assume that the observer will still feel as if they are being ignored when eye contact is being avoided (McKay, 2020).

Individuals with ASD are also known to have “a lack of spontaneous seeking to share enjoyment, interests, or achievements with other people (e.g., by a lack of showing, bringing, or pointing out objects of interest)” (Wedmore, 2011, p. 4). This behavior typically begins at early stages of development and is oftentimes one of the first warning signs that parents or caretakers notice. A significant way people make connections with others is through a shared interest, whether it is a sport, a video game, or a television show. Similarly, another defining factor of individuals with ASD that makes it hard for them to build connections is their “preoccupation with one or more stereotyped and restricted patterns of interest that is abnormal either in intensity or focus” (Wedmore, 2011, p. 4). Therefore, it is also unlikely that a majority of individuals with ASD will find

many people who share the same interests as them, especially to the same extent (Wedmore, 2011).

Likewise, many people with ASD do not have the same desire to make connections with other people. In fact, in a study that involved participants with ASD, one individual stated, “If I find it too hard to give eye contact, it sometimes relates to not being comfortable making that connection with people. Forcing me to look at someone is forcing an intimacy that does, indeed, have a tone of violation” (Trevisan et al., 2017, p. 5). Therefore, individuals with ASD avoid eye contact because they feel overexposed or violated by the other person. Consequently, individuals with ASD may struggle making connections with their family members, peers, and anyone who they encounter on a daily basis (Trevisan et al., 2017).

Similarly, eye contact is also crucial in building an intimate and emotional bond with a significant other. Researchers offer a multifaceted definition of romantic intimacy found in literature: “intimacy in enduring romantic relationships is determined by the level of commitment and positive affective, cognitive, and physical closeness one experiences with a partner in a reciprocal (although not necessarily symmetrical) relationship” (Wedmore, 2011, p. 8). The key word in this definition is *reciprocal*. Individuals with ASD are prone to display a lack of social and emotional reciprocity, implying that both sympathy and empathy do not come naturally to them. A vital way to connect with someone emotionally is through mutual eye contact. However, many individuals with ASD find reciprocal eye contact uncomfortable, and have no innate desire to share such emotional and physical experiences with another person (Wedmore,

2011). Similarly, people with ASD also have a difficulty understanding the “emotional and cognitive worlds of others” (Wedmore, 2011, p. 9). Therefore, even when they do make direct eye contact with others, they still have a difficult time making connections and relating to and understanding another person’s cognitive, emotional, and physical experiences (Wedmore, 2011).

On the contrary, while individuals with ASD do face many barriers relating to intimacy and building relationships, one study suggested that some individuals with ASD desire to build relationships and improve their social skills. In a quantitative study involving 16 participants with high functioning ASD and 16 typically developing (TD) participants, the researchers matched the individuals and assessed them on their perception of “friendship, friendship qualities, lack of social relationships, and self” (Wedmore, 2011, p. 12). The study’s findings suggest that individuals with ASD view close friendships differently than the TD individuals; while the typically developing group attributed affective traits to friendship, the individuals with ASD attributed “shared activities and close proximity” (Wedmore, 2011, p. 12) to a friendship. Despite their differences in how friendship is perceived, individuals with ASD consider friendships to be a relationship that would be valuable in their life, and even improve their self-confidence. In fact, Wedmore (2011) concluded that individuals with ASD who reported having close friendships experienced less loneliness and had a greater feeling of self-worth.

With regard to romantic relationships, a significant number of individuals with ASD are interested in having this type of relationship with another person (Wedmore,

2011). In a 20-year longitudinal study (Wedmore, 2011), the parents of 41 individuals with ASD were asked a series of questions about their adult child's romantic outcomes. Based on the findings, 44% of the parents who stated that their adult child with ASD was not in a romantic relationship, believed that their son or daughter would like to be in this type of relationship someday. The above percentage only relates to individuals with ASD who are not already in a relationship; it does not include the individuals who were already in a relationship (Wedmore, 2011).

While a lack of desire for physical intimacy is a common theme in individuals with ASD, this is not true for every case. Oftentimes, it can seem as if society is obstinate in their belief that those with ASD and other types of disabilities are incapable of physical affection. The danger of this belief is that individuals with ASD may act out on their desires in a dangerous or inappropriate way. These behaviors will most likely be blamed on their disability; however, while that would reasonably be a contributing factor, it may also be a result of a lack of knowledge on how to identify and express these feelings. A significant number of individuals with ASD desire such relationships, therefore, it is important for individuals with ASD to be informed about what their feelings mean, that their feelings are normal, and how to express their feelings in an appropriate way (Wedmore, 2011).

Despite the stereotype, many individuals with ASD do have a desire to connect with others in their own way, build relationships, and express intimacy. Since eye contact is a crucial way to connect with someone, the teachers, caretakers, and parents of individuals with ASD should prioritize supporting the improvement of this social skill in

their life. Once they learn how to appropriately interact with others, and spend adequate time practicing this skill, it will be easier for individuals with ASD to develop and strengthen close relationships. As a result, they may feel happier, less lonely, and have a greater general sense of self-worth (Wedmore, 2011).

Eye Contact: Future Occupation

Eye contact is also important for future occupational reasons with regard to interviews, relating to supervisors, and collaborating with coworkers. Interviewing an applicant before hiring an individual for a job is a common practice. During an interview, eye contact can convey a variety of different messages to the interviewer. Making effective eye contact during an interview conveys confidence and self-esteem, gauges interest level, and builds rapport with the interviewer. The person being interviewed can utilize their eyes to show a level of passion and excitement about the work field they are applying for. Employers want their employees to love the work that they do, motivating them to do their best. Second, a person can use their eyes in an interview to build trust with the interviewer, as eye contact indicates honesty. When eye contact is avoided, the interviewer may think that the person being interviewed is being dishonest. Lastly, one should ensure that the eye contact being given is natural and does not seem forced. It is important for the person being interviewed to not stare at the interviewer; instead, they should be sure to look away an appropriate amount of times (Fusion Career Recruiter, 2017).

Additionally, eye contact is necessary for a social understanding when interacting with co-workers, taking care of customers, and discussing work-related issues. This is

especially true in jobs requiring constant communication between customers and employees (e.g., food industry positions, salesperson, customer service, human resource related jobs). While there are job opportunities that are not centered around constant communication with customers throughout the day, ongoing communication between co-workers and with managers/executives of the company is expected. Attending to social information and learning to interact with others enables one to function successfully in society, better understand an environment that is constantly changing, and make informed judgements based on social interactions, resulting in the best future course of action (Freeth et al., 2013). An individual with ASD who avoids eye contact will undoubtedly struggle to completely attend to the social information given by other people, resulting in significant social and occupational challenges, leading to the potential for poor judgment calls, or misunderstandings between the individual with ASD and the customers or co-workers (Trevisan et al., 2017). While this specifically affects adults with ASD, early intervention in children is one of the best ways to avoid such occupational problems in the future (Guralnick, 2011).

Determining the Purpose and Ethics of Requiring Eye Contact

Previous testimonies suggest that people with ASD experience “adverse emotional and physiological reactions, feelings of being invaded, and sensory overload while making eye contact, in addition to difficulties understanding social nuances, and difficulties receiving and sending nonverbal information” (Trevisan et al., 2017, p. 1).

Despite this, research shows that there are clearly many benefits and opportunities for an individual when they give appropriate eye contact. Given information on both the strain

of eye contact in an individual with ASD and the benefits of acquiring the skill of eye contact, an important controversial question to ask is whether or not requiring eye contact in these individuals is ethical. To answer that question, one should first define the purpose for requiring eye contact and assess whether those purposes are served when the individual is giving eye contact. For example, Stewart (2010) recorded personal experiences of individuals with ASD stating that eye contact interferes with learning and listening abilities. Teachers require eye contact from their students because it makes them feel as if their students are listening; however, if requiring eye contact in the classroom prevents individuals with ASD from learning, the initial purpose of getting the students to listen is not being fulfilled. Conversely, in relation to the requirement of mutual eye contact for occupational purposes, individuals with ASD should be required to give eye contact, especially when being interviewed and during employer and customer interactions. In an occupational setting, the purpose of the employee giving eye contact is to connect with their employers, customers, and co-workers by showing them respect and confidence in the occupation. Therefore, when the individual is giving eye contact, the purpose is being served (Stewart, 2010).

Unfortunately, many TD individuals do not have an innate knowledge of the experiences of individuals with ASD and eye contact. Thus, it is important that the caretakers and teachers of individuals with ASD strive towards developing strategies that will help achieve the goal of initiating and maintaining eye contact. In order to fulfill the purpose of eye contact in a given situation, strategies that help people with ASD to attend

to and coordinate two sources of sensory input at once should also be implemented (Stewart, 2010).

Practices to Support Increased Eye Contact

A substantial number of children with ASD fail to develop the important skill of eye contact; therefore, experimenters with developmental and behavior analytic perspectives have researched methods to teach eye contact (Carbone et. al, 2013). Studies related to the improving eye contact include the concept of *shaping* as an early intervention method (Fonger & Malott, 2019), the Practitioner Model (Cook, 2017), the *eye contact illusion* (Rogers et. al, 2019), and recommendations for the classroom that can also be implemented in the home (Montemurro, 2020). While the effectiveness of models and strategies differ since every child is unique, the results of each strategy still give evidence of benefiting the participants. However, since methods of teaching eye contact are still being tested, there are limitations within the research (Cook, 2017).

Shaping Model

Research consistently supports that early intervention is the best method when working with students with a variety of disabilities (Guralnick, 2011). Fonger and Malott (2019) put this suggestion into practice when conducting a single subject study using the shaping model to teach eye contact to young children with ASD. The first procedure of this model was to teach three preschool-aged children diagnosed with ASD to make eye contact with the instructor for the duration of 3 seconds. Next, eye contact was taught during the breaks in instruction. As the child went through more interventions, reinforcements decreased while training for generalization across instructors and settings.

In order to support generalization, these 5-minute sessions were conducted in a variety of places (their work areas, the playroom, group tables, and the hallway). The results of this method were astounding, as all three children quickly acquired sustained eye contact. Even after one month, they maintained this skill without the need for prompting. This model is an effective way to intervene early, and an appropriate strategy to teach eye contact for students across all baseline levels. (Fonger & Malott, 2019).

Practitioner Model

With the practitioner model (Cook, 2017), the goal was to evaluate the effects of a sequential model for increasing eye contact in children with ASD. This model includes a variety of phases in search of which method is most effective: “contingent praise only (for eye contact), contingent edibles plus praise, stimulus prompts plus contingent edibles and praise, contingent video and praise, schedule thinning, and maintenance evaluations for up to 2 years” (Cook, 2017, p. 1). The results of this model were also praiseworthy, as the procedures increased eye contact for 20/36 of the participants. For 16/36 of the participants, praise alone was not a sufficient motivation to promote eye contact. Therefore, one can infer from this model that a majority of individuals with ASD require either an edible or tangible reward to motivate them, rather than just words of affirmation or praise. Since every child is unique, it may take a few attempts to determine which strategy works best for a specific individual with ASD (Cook, 2017).

The Eye Contact Illusion

If the models are ineffective and the individual still experiences anxiety when making eye contact with another person, there are other strategies that can be

implemented. An experiment called the Eye Contact Illusion demonstrates that a person does not need to look directly at the eyes of the person they are having a conversation with to be perceived as making eye contact. Research suggests that people have a difficult time distinguishing where exactly on the face, or just off the face the other person is looking during conversation. Therefore, many individuals claim to perceive eye contact even when it is technically not being given. Recent studies also suggest that people engage in mouth gazing more often than expected; without an intense focus on where the communicator and listener are gazing, an individual would typically not tell a major difference between direct eye gaze and direct mouth gaze (Rogers et. al, 2019).

In an experiment conducted to show how powerful the eye contact illusion can be, one researcher, Oliver Guidetti (Rogers, et. al, 2019), engaged in a 4-minute long conversation with 46 university students. The individuals were sitting one meter apart, and each wore Tobii eye tracking glasses. For about half of the participants, Oliver behaved how he typically would in relation to gaze; he predominately gazed at the eyes. With the second half of the participants, Oliver gazed predominately at the mouth. The results suggest that the amount of mutual face gaze did not significantly differ between the two groups; however, mutual eye contact was much lower in the group where Oliver gazed predominately at the mouth when compared to the group where he gazed predominately at the eyes. After the conversations, the participants rated how well they enjoyed the conversation, and how much eye contact they believe that Oliver was trying to make. Both groups perceived the same amount of eye contact and enjoyed the conversation equally. Therefore, individuals who find direct eye contact unbearable,

including a person with ASD, could practice this strategy as a way to give the illusion of eye contact when interacting with others, without actually having to give it (Rogers et. al, 2019).

Recommendations for the Classroom

There are many effective and simple strategies recommended when looking to improve eye contact in individuals with ASD. While these strategies are especially helpful for parents, teachers and caretakers of these students can also use these strategies to further encourage eye contact in the classroom. The earlier these strategies are implemented, the better the results. For younger students, a teacher can use playtime as a strategy to increase eye contact. For example, the teacher can make eye contact with the students with eye contact atypicalities when pushing them on the swing at recess, having fun staring contests, and playing face imitation games where the student imitates the funny face being made by the other individual. When mutual eye contact is made, the teacher should use reinforcements such as a smile, laugh, funny face, or whatever best motivates the individual child (Montemurro, 2020).

Teachers could also use strategies during everyday conversations to increase mutual eye contact. When getting a student's attention, the teacher could call their name until they look up and meet eyes. When the student does meet the teacher's eyes, there should be constant reinforcement based on the student's preferences (verbal, edible, tangible). Another strategy that can be implemented when the students make a request, whether it is a tangible, a snack, going to the bathroom, or going to sharpen their pencil, is waiting until eye contact is made before either handing them the object or letting them

complete the task. As soon as the contact is made, allow the student to obtain or do what they were asking for (Montemurro, 2020).

Additionally, teachers can naturally increase eye contact in an individual with ASD by modeling it themselves. Teachers should make it a priority to always make eye contact with their students when speaking with them. This includes avoiding looking at laptops and phones while the student is having a conversation with them. When eye contact is not being made at the appropriate time, teachers could prompt their students by reminding them that they cannot hear them because they are “sending the voice to the wall/floor” (Montemurro, 2020, p. 3). This is a gentle reminder that the student is not making the appropriate eye contact (Montemurro, 2020).

Finally, positive reinforcement strategies should be implemented on a daily basis with students who are struggling to initiate and maintain eye contact. The type of reinforcement is determined by the student’s preference. If the student appreciates verbal reinforcements, then the teacher should make it a priority to consistently commend the student when mutual eye contact is made. For students who prefers a tangible or edible, the teacher should give them an item that will excite and motivate them to continue to give direct eye contact. These items may include a sticker, a dojo point, their favorite piece of candy, or an activity that they enjoy. Determining the method that works best is unique for each individual. Therefore, the teacher will need to make an effort to set aside time to meet with the student’s parents and workers, as well as make direct observations in the classroom in order to decide the best strategies for the specific student. Though

tedious, if done correctly, the results may be life changing for the individual (Montemurro, 2020).

Conclusion

Dr. Stephen Shore once said, “if you’ve met one individual with autism, you’ve met one individual with autism” (DeCourcy, 2018, 1). There is a great diversity of individuals within the autism spectrum; however, there are many characteristics that individuals with ASD share, with aversion to eye contact being a probable distinction. A student’s aversion to eye contact is valid and should always be considered. However, the relational, occupational, and social rewards that correlate with direct eye contact make it important for parents, teachers, and caretakers to encourage the development of eye contact in individuals with ASD. Every child is unique, so there will inevitably be times when strategies are ineffective. Therefore, patience and diligence are foundational in trying and finding the researched strategies that work best for the specific individual. Furthermore, a passion for improving the student’s skill, with the goal in mind of opening an array of opportunities for them, is the first and most important step to take.

References

- Assouline, S. (2008). The paradox of giftedness and autism. *The University of Iowa*, 1-45.
- Burger-Veltmeijer, A. E., Minnaert, A. E., & Van Houten-Van den Bosch, E. J. (2011). The co-occurrence of intellectual giftedness and autism spectrum disorders. *Educational Research Review*, 6(1), 67-88. doi: 10.1016/j.edurev.2010.10.001
- Carbone, V. J., O'Brien, L., Sweeney-Kerwin, E. J., Albert, K.M. (2013). Teaching eye contact to children with autism: A conceptual analysis and single case study. *Education and Treatment of Children*, 36(2), 139-159. doi:10.1353/etc.2013.0013
- Caruana, N., Inkley, C., Zein, M. E., & Seymour, K. (2019). No influence of eye gaze on emotional face processing in the absence of conscious awareness. *Scientific Reports*, 9(1). doi:10.1038/s41598-019-52728-y
- Cañigual, R., & Hamilton, A. F. (2019). The role of eye gaze during natural social interactions in typical and autistic people. *Frontiers in Psychology*, 10. doi:10.3389/fpsyg.2019.00560
- Choi, B., Leech, K. A., Tager-Flusberg, H., & Nelson, C. A. (2018). Development of fine motor skills is associated with expressive language outcomes in infants at high and low risk for autism spectrum disorder. *Journal of Neurodevelopmental Disorders*, 10(1). doi:10.1186/s11689-018-9231-3
- Cook, J. (2016). From movement kinematics to social cognition: The case of autism. *Philosophical Transactions: Biological Sciences*, 371(1693), 1-11.

- Cook, J. L., Rapp, J.Y., Mann, K., &McHugh, C. (2017). A practitioner model for increasing eye contact in children with Autism. *Behavior Modification, 41*(3), 382-404. doi:10.1177/0145445516689323
- DeCourcy, R. (2018). The autism spectrum at a glance. *Forensic Scholars Today,4*(3), 1-3.
- Fonger, A.M., & Malott, R.W. (2019). Using shaping to teach eye contact to children with Autism spectrum disorder. *Behavior Analysis Practice 12*, 216–221. <https://doi.org/10.1007/s40617-018-0245-9>
- Freeth, M., Foulsham, T., & Kingstone, A. (2013). What affects social attention? Social presence, eye contact and Autistic traits. *PLOS ONE, 8*(1), 1-16. doi: 10.1371/journal.pone.0053286
- Frye, R. E. (2018). Social skills deficits in Autism spectrum disorder: Potential biological origins and progress in developing therapeutic agents. *CNS Drugs, 32*(8), 713-734. doi:10.1007/s40263-018-0556-y
- Gandotra, A., Kotyuk, E., Szekely, A., Kasos, K., Csirmaz, L., & Cserjesi, R. (2020). Fundamental movement skills in children with autism spectrum disorder: A systematic review. *Research in Autism Spectrum Disorders, 78*, 1-14. doi: <https://doi.org/10.1016/j.rasd.2020.101632>
- Grover, P. (2021). Conceptual models of disability. *PM&R KnowledgeNow*. <https://now.aapmr.org/conceptual-models-of-disability/>.
- Guralnick, M. J. (2011). Why early intervention works. *Infants & Young Children,24*(1), 6-28. doi: 10.1097/iyc.0b013e3182002cfe

- Hietanen, J. K. (2018). Affective eye contact: An integrative review. *Frontiers in Psychology*, *9*, 1-29. doi:10.3389/fpsyg.2018.01587
- Kennedy, S. (2008). Eye contact and autism. *The American Journal of Nursing*, *108*(11), 21.
- Leppold, J. (2020, February 14). 8 ways to increase eye contact. <https://behaviorplace.com/tips/8-ways-to-increase-eye-contact1>
- Madipakkam, A.R. Rothkirch, M., Dziobek, I., & Sterzer, P. (2017). Unconscious avoidance of eye contact in autism spectrum disorder. *Scientific Report* *7*, 13378. <https://doi.org/10.1038/s41598-017-13945-5>
- McCain, H. (2017, July 15). Medical model of disability versus social model of disability. <https://canbc.org/blog/medical-model-of-disability-versus-social-model-of-disability/>
- McKay, B. (2020, December 04). Look 'em in the eye: Part I—the importance of eye contact. Retrieved March 16, 2021, from <https://www.artofmanliness.com/articles/eye-contact/>
- Montemurro, T. (2020, February 14). *8 Ways To Increase Eye Contact*. The Behavior Place. <https://behaviorplace.com/tips/8-ways-to-increase-eye-contact1>.
- Recruiter, F. (2017, March 27). The significance of eye contact in an interview—Fusion career Services Blog. <https://www.fusioncareer.com/eye-contact-interview/>
- Rogers, S. L., Guidetti, O., Speelman, C.P., Longmuir, M., & Phillips, R. (2019). Contact is in the eye of the beholder: The eye contact illusion. *Perception*, *48*(3), 248-252. doi:10.1177/0301006619827486

- Stewart, R. (2010). Should we insist on eye contact with people who have autism spectrum disorders? <https://www.iidc.indiana.edu/irca/articles/should-we-insist-on-eye-contact-with-people-who-have-autism-spectrum-disorders.html>
- Trevisan D.A., Roberts N., Lin C., & Birmingham E. (2017) How do adults and teens with self-declared Autism Spectrum Disorder experience eye contact? A qualitative analysis of first-hand accounts. *PLOS ONE* 12(11): e0188446. <https://doi.org/10.1371/journal.pone.0188446>
- Wedmore, H.V., "Autism spectrum disorders and romantic intimacy" (2011). *Graduate Theses and Dissertations*. 10143. <https://lib.dr.iastate.edu/etd/10143>