Domain III
Understanding Faces

While Domain I and II skills emphasize attentional and perceptual aspects of facial processing, Domain III builds on these skills by focusing on how they are used in social interactions. Domain III highlights the importance of eye contact and eye gaze in social interactions as well as the interpretation of how subtle facial cues are used to convey emotion within social situations.

Eye Contact

Eye contact, the detection that one’s eyes are in mutual contact with another’s, and eye gaze are important tools in social interactions. As a nonverbal form of communication, eye contact has been shown to have a subtle, yet powerful effect on shaping the nature of social interactions. For adults, eye contact is used to emphasize information to an audience, regulate turn-taking in a conversation, convey intimacy, and exercise social control (30). While these skills develop quite early for the majority of children (46) children with ASD tend to limit their amount or even actively avoid their amount of eye contact with others. In one retrospective study, 90% of parents reported that their school-aged children with ASD frequently avoided eye contact in social situations as an infant (61). Developmentally, it has been shown that 6-month-old babies will attend to a face looking at
them for 2 to 3 times longer than a face that is looking in another direction.\(^{46}\) For the young infant, eye contact serves as an early form of prelinguistic communication with the mother\(^{37}\) and is especially important for sharing affective states.\(^{55}\) Joseph and Tager-Flusberg\(^{30}\) found that ASD children attended to the face of their respective mothers for significantly less time than Down syndrome controls, and that mothers of ASD children had to use physical prompts or prodding to gain the attention of their child. Other studies suggest that children with autism do not differ from other children in the amount of time spent gazing at others, but do differ in the quality of their eye contact. Dawson and colleagues\(^{13}\) found that during unstructured play, young children with autism equaled controls in the amount of eye contact with their mothers. However, unlike the other children, the mutual gaze of children with autism was less likely to be combined with an appropriate facial expression. This result suggests that children with autism do not employ eye contact as a way to communicate emotion or affect to others. Still other studies indicate that individuals with ASD fail to use eye contact to communicate emotion to others\(^{13,31}\).

**Joint Attention**

Sometime after the first six months of life, a child learns to use eye gaze for purposes of joint attention. In this triadic exchange, the child employs eye gaze or pointing cues to direct the caregiver’s attention toward an external object or event that is of mutual interest. For example, a young infant will smile at her mother and look at a favorite stuffed animal in an attempt to enlist the mother’s gaze and assumed attention to the toy. In a typically developing child, referential looking develops around 6 to 9 months of age\(^{62}\) and referential pointing occurs slightly later around 9 and 12 months\(^{23}\).
In contrast, spontaneous displays of joint attention occur later and are far less frequent in children with autism \(^{(35)}\). Even when ASD children display behaviors of joint attention, their actions lack many of the qualities typically associated with this form of social communication. Similar to the previous findings on eye contact, the joint attention behaviors of children with autism are often devoid of affect, suggesting these actions do not carry any emotional content for the children \(^{(31)}\). Moreover, the joint behaviors of children with autism are more likely to be of the **protoimperative** type where the purpose of the eye gaze is to recruit the assistance of another to obtain a particular object or goal \(^{(31)}\). For example, a young child may look at her caregiver and a computer in order to gain her help in turning it on. The purpose of a **protodeclarative** display of joint attention, on the other hand, is to communicate a shared experience to another person (e.g., showing a caregiver that there is an interesting photograph in a magazine), and it is this type of joint attention that is much less frequently exhibited by ASD children. Thus, when joint attention is employed by children with autism, it is usually for instrumental purposes rather than for purposes of social affiliation.

**Quick Summary!**

Displays of joint attention occur later and are less frequent in children with autism. In addition, their joint attention actions lack qualities typically associated with social communication. Their joint attention is devoid of emotion and is likely to be **protoimperative** instead of **protodeclarative**, in other words, it is usually for instrumental purposes rather than for social affiliation.

**Definition**

**Protoimperative Joint Attention**: purpose of eye gaze is to recruit the assistance of another to obtain something.

**Protodeclarative Joint Attention**: purpose is to communicate a shared experience to another person.
Facial Cues in a Social Context

The ability to understand the meaning of facial expressions in social interactions is a major component of Domain III. This more advanced form of social cognition requires not only the recognition of facial expression, but also an understanding of the social context of a situation. Not unexpectedly, children with ASD can be impaired in their ability to identify the appropriate emotion when it is embedded in a social context. Fein and colleagues (16) found that children diagnosed with Pervasive Developmental Disorder (PDD) or ASD had difficulty matching the appropriate facial emotion to a given scenario (e.g. a child eating an ice-cream, a child holding a broken toy). This finding suggests that children with ASD may experience difficulties when trying to make sense of emotional situations in the real world.

In an enactment of a real world situation, Sigman and colleagues (53) seated a child at a small table with an experimenter who was demonstrating how to use a wooden toy hammer. During the demonstration, the experimenter pretended to strike her finger with the hammer and displayed facial expressions indicating that she was in a great deal of pain and distress. Children with ASD tended to ignore the distressed signals of the adult altogether and continued to play with the toy without interruption. Thus, even when children with autism experience emotionally-laden situations first-hand, they fail to display typical signs of emotional empathy and concern.

Thus, Domain III activities focus on skills involved in eye-gaze, eye contact, and understanding the meaning of facial expressions in social situations. For example, a child may work towards being able to detect a face that is making direct eye contact with them or practice getting people’s attention through eye contact. Furthermore, other activities will promote the ability to track another individual’s eye gaze to determine what object or person they may be referencing with their eyes. Finally, activities within Domain III will focus on improving children’s ability to understand emotionally laden social situations by interpreting facial cues within the context of the environment.