

Social Learning Challenges for Toddlers with Autism: Following Other People's Eye Movements

Children with autism typically have impaired social interaction and communication. The early signs of autism in infants and toddlers include difficulties in reading subtle social cues such as gestures, facial expressions and direction of eye gaze. This last symptom, a deficit in spontaneously monitoring another's gaze, limits the ability of young children with autism to learn about and participate in important social events in their environment.

In everyday situations infants and toddlers with autism do not follow gaze of others, but they may not be entirely insensitive to subtle changes in gaze direction. In this study, we examined sensitivity to gaze of 2-year-old children with autism and typically developing peers. In one condition, children watched an image of a face at a center of a computer screen with eyes shifting either to the left or to the right. The eye gaze shift was followed by an appearance of a picture of a toy on either side of the screen. In another condition, children watched an identical sequence of pictures, but the face was replaced by a colorful rectangle with a small shape shifting either to the left or to the right. If children with autism were sensitive to changes of gaze direction, they should look more rapidly at pictures appearing in locations congruent with eye-gaze direction than at pictures appearing in locations incongruent with gaze. If this type of cueing was specific to moving eyes (as opposed to any moving object), then these differences should be more pronounced in the first condition than the second.

The results suggest that the basic perceptual sensitivity to gaze direction is present both in young children with autism and their typically developing peers. Thus, although in naturalistic situations toddlers with autism do not follow the gaze of others, their visual attention is cued automatically by perceived direction of eye movement. Other aspects of their performance, however, suggest that the 2-year-olds with autism may use a different strategy to process information about gaze than their typical peers. Whereas typical children take more time to process eye movement than a movement of an inanimate object; no such differentiation was present in children with autism. These findings raise a fascinating question regarding the developmental trajectory of the impairments in gaze following by children with autism. We hypothesize that due to the critically low frequency of looking at faces in general, and at the eyes in particular, toddlers with autism have very limited opportunities to learn about their predictive value and social meaning. Thus, despite intact basic perceptual skills, such as sensitivity to changes in gaze direction, their development of early social-cognitive skills may follow a different trajectory as compared with typical peers.

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