



Intermodal matching of emotional expressions in young children with autism

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Abstract

This study examined the ability of young children with autism spectrum disorders (ASD) to detect affective correspondences between facial and vocal expressions of emotion using an intermodal matching paradigm. Four-year-old children with ASD ($n = 18$) and their age-matched normally developing peers ($n = 18$) were presented pairs of videotaped facial expressions accompanied by a single soundtrack matching the affect of one of the two facial expressions. In one block of trials, the emotions were portrayed by their mothers; in another block of trials, the same emotion pairs were portrayed by an unfamiliar woman. Findings showed that ASD children were able to detect the affective correspondence between facial and vocal expressions of emotion portrayed by their mothers, but not a stranger. Furthermore, in a control condition using inanimate objects and their sounds, ASD children also showed a preference for sound-matched displays. These results suggest that children with ASD do not have a general inability to detect intermodal correspondences between visual and vocal events, however, their ability to detect affective correspondences between facial and vocal expressions of emotions may be limited to familiar displays.

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The social disabilities found in autism have been consistently emphasized as a central defining feature (Volkmar & Klin, 1994). Studies have shown that individuals with autistic spectrum disorders (ASD) exhibit a variety of social abnormalities from infancy onward, such as impairment of social gaze, failure of joint attention, inappropriate affect, lack of interest in peers, and difficulty in communicating (Hobson, 1986a; Hobson, Ouston, & Lee, 1988; Loveland, Tunali-Kotoski, & Chen, 1995; Yirmiya, Kasari, Sigman, & Mundy, 1989). The lack of skill in expression and recognition of emotions is the most prominent clinical feature of the social deficit of autism and likely to be one of the most significant obstacles to their ability to interact intimately with others and form social relationships. Hobson (1993) has theorized that early in development, children with autism fail to coordinate affective attunement with others; which could imply an early deficit in the direct perception of affect. Similarly, Loveland (1991) suggested that individuals with autism are impaired in the ability to perceive the functional significance or “affordances” of events. This impairment would suggest that children with autism have difficulty recognizing and responding appropriately to the affective expressions of others, which would have major implications for later social development.

At present, however, there is no clear evidence for young children with autism lacking the ability to perceive information relevant to affect, although they have been found to be more interested in objects than in social partners (Dawson & Lewy, 1989). Dawson, Meltzoff, Osterling, and Rinaldi (1998) compared the visual responses of young children with autism to social and non-social stimuli with those of mental age-matched children with Down syndrome. They found that children with autism frequently failed to orient to any stimulus, especially to social stimuli. Also, Swettenham et al. (1998), in a study of spontaneous looking behavior of young autistic children during play sessions, found that autistic children, compared to controls, spent less time looking at people and more time looking at objects. Therefore, there are indications that the abnormalities in gaze behavior in young children with autism are related to the social content of the stimuli (see also Osterling, Dawson, & Munson, 2002). In a study of home videotapes of first birthday parties, the failure to attend to others’ faces was the single best discriminator between 1-year-old children with ASD and normally developing children (Osterling & Dawson, 1994).

Studies that investigated the effect of autism on recognition of emotional expressions often involved matching procedures with older children and adolescents. For example, Hobson (1986b) demonstrated that children with ASD have difficulty matching facial expressions with appropriate gestures, vocalizations, or situations. The author showed that individuals with ASD were more impaired in matching photographs of facial expressions with the corresponding vocalization than in matching photographs of things or animals with their corresponding sounds. Consistent with these data, Celani, Battacchi, & Arcidiacono (1999) showed that individuals with autism were less proficient than developmentally delayed children in matching a facial expression briefly presented on a static videopicture with a photograph of the same emotion. Loveland et al. (1995) found that adolescents with autism performed more poorly than those with Down syndrome when asked to point to the appropriate facial expression in a display when they heard a script that represented one of the emotions.

Yet, although many studies have found evidence supporting a deficit in the perception of affect in autism, others have not. Several studies found no differences in tasks involving emotions when autistic and non-autistic groups were matched on verbal ability (Davies, Bishop, Manstead, & Tantam, 1994; Loveland et al., 1997; Ozonoff, Pennington, & Rogers, 1990; Prior, Dahlstrom, & Squires, 1990; Tantam, Monaghan, Nicholson, & Stirling, 1989). Also, the majority of studies on emotion recognition in autism show only small deficits and involved primarily older children and

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