Can individuals with autism attribute human characteristics to animated geometrical figures? An eye tracking study

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Abstract

Human social life is dependent on the ability of each individual to understand other people as independent entities, capable of reasoning and intentions different from their own. Indeed, there is much to suggest that humans are geared towards seeing intentionality in the world that surrounds us. The understanding and the attribution of such mental states are naturally occurring abilities, which manifest relatively early in development, around 3-4 years of age (Wimmer and Perner, 1983; Gergely and Csibra, 1994; Leslie, 1982, 1987; Premack, 1990; Spelke, 1990). Individuals with autism (ASD) seem to experience difficulty in attributing such mental states to others (Baron-Cohen, 1993), a deficit which may potentially explain the impaired social interaction and communication this group presents. We compared how individuals with ASD and typically developing peers (TD) (age range 10-22 years old) performed in a task where they viewed two animated triangles in 15 short silent Frith-Happe animations (Castelli et al, 2000), which vary in degree of intentionality (random, goal-directed, theory of mind). We recorded verbal descriptions of the videos and participants’ eye movements. Prior work by Klein et al (2008) has shown that each type of video influences fixation durations in typically developing adults (with longest fixations in theory of mind presentations). However, Zwickel et al (2010) found no reliable difference in fixation durations between adult ASD and typically developing adults. We present preliminary data where we consider more complex analyses beyond fixation duration for possible differences between test groups, and possible relationships to age, as well as a number of other psychometric measures (e.g. IQ, WISC).

Keywords: Autism, theory of mind, triangles, eye tracking.