

Autistics' Atypical Joint Attention: Policy Implications and Empirical Nuance

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ABSTRACT—*Burack and Russo (2008) applaud our approach to understanding autistics' atypical joint attention (Gernsbacher, Stevenson, Khandakar, & Goldsmith, 2008) but express some concerns about the evidence we drew upon to support our thesis. In response, we underscore the empirical nuance of our thesis—that autistics' atypical manifestations of joint attention arise from their atypical resistance to distraction, atypical parallel perception, and atypical execution of volitional actions. We recap how our hypothesis derives from fresh interpretations, well-replicated findings, and underlying mechanisms.*

KEYWORDS—*autism; enhanced perceptual processing; gaze dyspraxia; joint attention; intentionality; pointing*

We appreciate Burack and Russo's (2008) commentary, which applauds the policy implications of our essay on autistics' atypical joint attention (Gernsbacher, Stevenson, Khandakar, & Goldsmith, 2008). While preparing our target essay, we heeded *Child Development Perspectives'* charge to address a “second anticipated audience,” which comprises “consumers of research.” In addition to parents, professionals, and policy makers, who increasingly digest autism research, we addressed

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the most relevant consumers: autistic¹ individuals themselves, who increasingly contribute to and critique autism research (Gernsbacher, 2007).

However, while we respected federal policy regarding public discussion of individuals with disabilities, such as the mandate by the National Institutes of Health's parent organization and the American Psychological Association to “emphasize abilities, not limitations,” we neither adopted nor advocated a blanket positivistic approach. Rather, we built our thesis—that autistics' atypical manifestations of joint attention arise from their atypical resistance to distraction, atypical parallel perception, and atypical execution of volitional actions—with the empirical nuance that Burack and Russo (2008) recommend. We forwarded fresh interpretations, emphasized well-replicated findings, and identified underlying mechanisms.

FRESH INTERPRETATIONS

Our target essay advanced our scholarly goal of drawing fresh interpretations from previously reported data (e.g., Akhtar & Gernsbacher, 2007; Dawson, Mottron, & Gernsbacher in press; Dawson, Soulières, Gernsbacher, & Mottron, 2007; Gernsbacher, 2008; Gernsbacher, Dawson, & Mottron, 2006). For example, we reviewed a study that measured how long autistic children followed an experimenter's instruction to remain focused on a visual display. Autistic children, who remained focused twice as long as typically developing children, were originally

¹We follow Sinclair (1999; http://web.syr.edu/~jisincla/person_first.htm) in our respectful use of the term “autistic/s” rather than “person/s with autism” because the former is the term by which autistic individuals prefer to be called, and American Psychological Association (APA) style proscribes that authors “respect people's preferences; call people what they prefer to be called” (APA, 1994, p. 48). Indeed, a Google search conducted on March 14, 2007, revealed that 99% of the first 100 Google hits for the term “autistics” leads to organizations run by autistic persons, whereas all of the first 100 Google hits for the terms “person/s with autism” or “child/ren with autism” lead to organizations run by nonautistic individuals.

described as “stuck” (Landry & Bryson, 2004, p. 1118)—a description not applied to typically developing children, who remained focused twice as long as children with Down syndrome. We deduced instead that the experiment assayed all children’s resistance to distraction, at which autistic children excel.

Similarly, we reviewed another study in which autistic children persevered on a Continuous Performance Task twice as long as typically developing children. The autistic children were originally interpreted as having “defective motivational frameworks” (Garretson et al., 1990, p. 112). We concluded instead that the study exemplified autistic children’s atypical focused attention.

WELL-REPLICATED PHENOMENA

Our essay advanced our scholarly goal of emphasizing empirical phenomena that, despite repeated replication, often remain under the scientific community’s radar (e.g., Gernsbacher, 2003; Gernsbacher, Dawson, & Goldsmith, 2005; Gernsbacher & Frymiare, 2005; Gernsbacher et al., 2005). For example, autistics’ intact ability to attend covertly to social and nonsocial stimuli has been replicated in nearly a dozen studies, conducted in nearly a dozen laboratories, across nearly a dozen age ranges (Bird, Catmur, Silani, Frith, & Frith, 2006; Casey, Gordon, Mannheim, & Rumsey, 1993; Chawarska, Klin, & Volkmar, 2003; Greenaway & Plaisted, 2005; Iarocci & Burack, 2004; Kylliainen & Hietanen, 2004; Ristic et al., 2005; Senju, Tojo, Dairoku, & Hasegawa, 2004; Swettenham, Condie, Campbell, Milne, & Coleman, 2003; Vlamings, Stauder, van Son, & Mottron, 2005).

Autistics’ intact understanding of the intentionality of others’ actions has been replicated with nearly a dozen laboratory tasks, across a wide range of participants; indeed, every published study has replicated autistic children’s and adults’ intact understanding of the intentionality of human action (Aldridge, Stone, Sweeney, & Bower, 2000; Carpenter, Pennington, & Rogers, 2001; Russell & Hill, 2001; Sebanz, Knoblich, Stumpf, & Prinz, 2005).

Autistics’ superior parallel perception has also been replicated by nearly a dozen experiments, and again, every reported study has replicated this superiority, showing an average advantage of greater than 1 *SD* (Jarrod, Gilchrist, & Bender, 2005; O’Riordan, 2004; O’Riordan & Plaisted, 2001; O’Riordan, Plaisted, Driver, & Baron-Cohen, 2001; Plaisted, O’Riordan, & Baron-Cohen, 1998).

These three phenomena replicate across heterogeneous samples and various group-matching strategies (e.g., mental age vs. chronological age). We eschew using the terms *low functioning* and *high functioning* because they lack consistent empirical definition, and their usage violates public policy (U.S. Department of Health and Human Services, 2003). Nonethe-

less, we emphasize that intact covert attention is demonstrated by autistic toddlers (Chawarska et al., 2003) and preteens (Iarocci & Burack, 2004) with average IQs lower than 50, autistic preteens (Kylliainen & Hietanen, 2004) and young adults (Ristic et al., 2005) with average IQs higher than 100, and autistic middle-age adults with average IQs around 80 (Casey et al., 1993).

Intact understanding of intentionality is demonstrated by autistic toddlers (Aldridge et al., 2000), preschoolers (Carpenter et al., 2001), and grade schoolers (Russell & Hill, 2001) with average IQs lower than 75 as well as autistic adults (Sebanz et al., 2005) with average IQs higher than 100. Superior parallel perception is demonstrated by autistic children with average IQs lower than 50 (Jarrod et al., 2005) as well as autistic adults (O’Riordan, 2004) with average IQs higher than 110.

UNDERLYING MECHANISMS

Our essay advanced our empirical and theoretical goal of identifying underlying mechanisms (e.g., Gernsbacher, 2006; Gernsbacher, Sauer, Geye, Schweigert, & Goldsmith, 2008). For example, we proposed that autistics’ less proficient execution of volitional actions (e.g., pointing their index fingers and turning their heads) underlies their less frequent initiation of, and response to, joint attention (by pointing their fingers and turning their heads).

Ninety percent of autistic toddlers who cannot point proto-declaratively (considered an index of joint attention) cannot point protoimperatively (not considered an index of joint attention; Baron-Cohen et al., 1996, p. 162; see also Robins, Fein, Barton, & Green, 2001). As shown in Figure 1, autistic toddlers and preschoolers who are less likely than typically developing children to turn their heads to look alternately between an object and a person (considered an index of joint attention) are also less likely to turn their heads to look

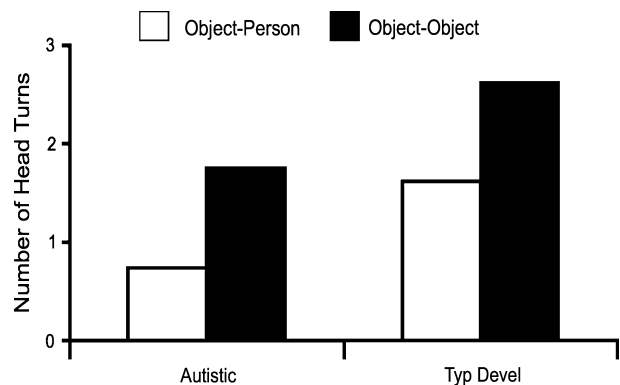


Figure 1. Frequency of autistic and typically developing children’s head turns in a 15 s period (from Young, Ozonoff, Pierce, Ong, & Rogers, 2007).

alternately between two objects (not considered an index of joint attention; Young, Ozonoff, Pierce, Ong, & Rogers, 2007).

Neurologists have long cautioned that difficulty executing volitional actions can be “mistaken” for cognitive and social-cognitive deficits because of difficulty executing “a reliable [finger] point or yes/no head [movement]” (Murray & Chapey, 2001, p. 74). However, the same tasks that neurologists use to assess difficulty executing volitional head and eye movement (gaze apraxia; Roberts, 1992) are used by psychologists to assess response to joint attention.

We conclude by maintaining our essay’s proposal that atypical resistance to distraction, atypical parallel perception, and atypical execution of volitional actions coalesce to produce autistics’ atypical manifestations of joint attention. We have *not* proposed (cf. Burack & Russo, 2008) that autistics need not share other people’s attention or invite other people to share their attention. Instead, we believe autistics do share other people’s attention and do invite other people to share their attention but they do so in atypical ways; their joint attention looks atypical. Understanding those atypical manifestations is a goal for us all.

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