

# Sensory Issues in Gifted Children: Synthesis of the Literature

By Paula Jarrard, MS OTR

Doctoral Candidate Rocky Mountain University of Health Professions

Provo, UT

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The differences demonstrated in gifted children both characterize giftedness and intensify learning difficulties, psychological characteristics, or behavioral problems unique to this twice exceptional group. Sensory over-reactivity and the term “overexcitabilities,” are similar constructs related to methods of information processing and sensory processing. These overlapping and related constructs are cited in psychology, psychiatry, OT, and medicine. A review of this literature reveals contradictory findings about whether or not gifted students have sensory processing impairments. In addition, these studies are fraught with weak methodological approaches and different, sometimes incompatible definitions of giftedness (Moonlial, 2007). No research or even case report information specifically addresses sensory processing and the gifted (Cronin, 2003). This subject has only gained recent attention in the form of empirical studies (Moonlial, 2007).

More gifted children exist than most people realize (Silverman, 2007). Furthermore giftedness may mask disabilities that impact IQ scores (Silverman, 2007). The prevalence of significant sensory processing disorder (SPD) symptoms was 35% in one large sample (n=500) from a gifted and talented center in a pilot study (SPD Foundation, 2007). Another study showed that 1/6 of gifted children tested at one center had a co-existing disorder, including SPD (Silverman, 2007). Having exceptional abilities and learning disabilities, when one or both are

unrecognized, can have pervasive and debilitating effects with social and emotional consequences persisting into adulthood (Baum et al., 1991; Durden & Tangherlini, 1993, as cited in Cronin, 2003). SPD may negatively affect development and functional abilities in gifted children defined by asynchronous development in cognitive, emotional, social, and motor domains (Silverman, 2002; Kandel et al.; Shepherd, 1994, as cited in Ahn, Miller, Milberger, & McIntosh, 2004; Singer, 2000).

The common manifestation of sensory issues in gifted children is a heightened awareness of and response to sensory stimulation (Piechowski & Miller, 1995). Overexcitabilities, a term characterizing giftedness in Dabrowski's Theory of Positive Disintegration, is linked to hypersensitivities involving not only psychological factors, but also nervous system sensitivity (Tolan, 1999). Increasing proportionally with higher levels of giftedness, introversion is linked with increased physiological sensitivity or reactivity to sensory input of pain, auditory stimulation, electrocutaneous stimuli, and olfactory input (Jackson, 1998; Silverman, 1986; Myers, 1980; Winner, 1996, as cited in Moonlial). Sensory Modulation Disorder is the most common subtype of SPD in the gifted; many gifted children also have dyspraxia (Cronin, 2003).

Case studies of gifted children mention unusually intense reactions to noise, pain, and frustration, and emotional hypersensitivity (Edmunds & Edmunds, 2005; Winner, 1996, as cited in Moonlial, 2007). Sensory overexcitability presents a challenge as gifted children may exhibit oversensitivity to clothing texture, fluorescent lights, odors, foods, and classroom noise (Webb et al, 2005, as cited in Moonlial). Compared to a typically developing sample, gifted children exhibited high levels of tactile defensiveness on the Sensory Integration Praxis Test, but no other differences (Carrasco, 1990, as cited in Moonlial).

Gifted children perform better on mental attention capacity and processing speed tasks when compared to a control group, but do not have better ability to inhibit or screen interference from irrelevant information during task performance (Johnson, Im-Bolter, & Pascual-Leone, 2003). If extraneous information cannot be filtered effectively as sensory input increases, cognitive energy is required to maintain regulation. The child may become overwhelmed if visual, auditory, or tactile integration processing is not adequate. Hyperfocusing or inattention may then result (Rice, 2000, as cited in Moonlial).

Unusually high abilities and asynchronous development in one or more domains characterize giftedness; these children appear to differ qualitatively from typical peers (Winner, 2000). The “double-edged sword” of giftedness often bestows, among other features, a global heightened awareness to sensory stimulation, an endowment of amplified mental processing speed and attention capacity, and unusual challenges with frustration, pain, noise, and emotional hypersensitivity (Edmunds & Edmunds, 1995). As many as one-third of gifted children may exhibit sensory processing disorder features, significantly impacting quality of life. Research at the level of nervous system functioning is important to further understand children who are “twice exceptional.” The primary goal is discriminating Sensory Processing Disorder from “giftedness” in an objective replicable manner and enriching our understanding of how to meet the complex education and social needs of the gifted child.

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