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Are children with Asperger syndrome creative in divergent thinking and feeling? A brief report

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ABSTRACT

This study investigates whether children with Asperger syndrome (AS) show superior competence in creativity, and it examines the relationship between nonverbal creativity and nonverbal IQ and vocabulary size. Sixteen (16) children with AS and forty-two (42) typically developing peers completed the exercises in divergent thinking and feeling from a creativity assessment packet. The results revealed that the participants with AS scored significantly higher in originality and elaboration, compared to their peers. Nonverbal divergent thinking was correlated to nonverbal IQ for participants with AS. It was observed that participants with AS drew the 12 incomplete figures mostly in the areas which interest them. This result may indicate better performances in originality and lesser performances in flexibility. The study suggests that opportunities to develop expertise in the subjects in which they are absorbed may be necessary for children with AS.

1. Introduction

It has been reported that one in 10 persons with autism show some savant skills in categories of music, art, calendar calculations, mathematics, mechanical, or spatial skills (Treffert, 2009). Why are some people with autism predisposed to such extraordinary abilities? Their cognitive styles of attention to detail, exemplar-based memory encoding, and veridical representations are proposed as starting engines for talent (Happé & Vital, 2009). Enhanced perceptions of pattern generation and detection have also been shown to contribute to savant performance (Mottron, Dawson, & Soulières, 2009). In addition, sensory hypersensitivity, which leads to excellent attention to detail, is suggested in the association between autism and talent (Baron-Cohen, Ashwin, Ashwin, Tavassoli, & Chakrabarti, 2009).

Asperger syndrome (AS), one of autism spectrum disorders, is a neurodevelopmental disorder that is characterized by abnormal functioning in social interactions, and restricted repetitive and stereotyped patterns of behavior, interests and activities (APA, 1994). People with AS have features such as creativity. Asperger (1944/1991) proposed that his patients' characteristics could promote high-level skill development. The characteristics of AS, such as perseverance, drive for perfection, concrete intelligence, and the ability to disregard social conventions, may be prerequisites for certain forms of new thinking and creativity (Gillberg, 2002). People with AS frequently possess the abilities to focus intensely on a single topic, remarkable capacities for persistence and observation, and high levels of energy and motivation (Fitzgerald, 2004). These traits may link people with AS to creativity. Fung (2009) described Asperger-like characteristics of the French

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composer Erik Satie, including perfectionism, perseverance, hatred of conventions and heightened sensitivity. Fung stated that those characteristics enabled Satie to devise his own original musical idiom.

However, little research has investigated the creativity of people with AS. Craig and Baron-Cohen (1999) conducted experiments to explore the creativity of 4 groups of participants, including children with autism, AS, mild learning disabilities, and typically developing children. The results measured by the instrument of the Torrance Tests of Creative Thinking revealed that both participants with autism and AS were impaired in the condition of parallel lines, but the participants with AS performed better in the condition of incomplete figures. In addition, in the measurements of originality and flexibility, both participants with autism and AS produced significantly fewer statistically rare responses, and generated responses from fewer categories than did the control groups. The researchers concluded that the creativity of children with autism and AS tended to be reality-based, rather than imaginative.

Are imagination and creativity interchangeable terms, or is imagination the source of creativity? Gaut (2003) claims that the imagination serves as a vehicle for active creativity, but he does not conclude that creativity requires imagination. He does, however, suggest that there is a constitutive connection between imagination and creativity. Except for less imaginative attributes, do individuals with AS show superior competence in creativity? This is the first question addressed in the current study. Based on the research reviewed, we hypothesized that participants with AS in the study would show greater creativity than typically developing peers.

The relationship between intelligence and creativity has long been a topic of debate. According to Torrance (1964), the correlation between creativity and IQ is below .30, and the correlation between high IQ and creativity is even lower. Guilford (1962) proposed that creative individuals possess divergent thinking abilities that traditional IQ tests do not measure. Richards (1976) and Runco and Albert (1986), however, showed the contrasting result that creativity is correlated to IQ scores. There is no evidence to support a correlation between creativity and IQ for people with AS. In the current study, we measured verbal intelligence of the vocabulary level. Therefore, the second issue investigated by the study is the relationship between nonverbal creativity and nonverbal intelligence, as well as nonverbal creativity and vocabulary size for participants. We hypothesized that nonverbal creativity of participants with AS would correlate to nonverbal intelligence, but not to vocabulary size.

2. Method

2.1. Participants

Two groups of participants were included in the study. The experimental group consisted of 16 male children with AS, who were recruited from a local association of parents of high-functioning children with autism and Asperger syndrome. The study designed to have male and female participants with AS. However, there was no female child with AS who volunteered as a participant in the study. In order to control factors of gender and socio-economic status, the control group consisted of 42 typically developing male children recruited from the schools of the participants with AS. Mean ages of participants in the experimental group and control group were 10.6 (range = 10.5–11.7 years) and 10.4 (range = 10.2–11.9 years), respectively. Participants in the experimental group were diagnosed by psychiatrists as AS according to DSM-IV criteria, and they were free of other psychiatric disorders, such as ADHD or affective disorders, prior to acceptance into the study. Participants in the control group had a history of typical neurological development, and no one in their families was reported to have psychiatric conditions.

2.2. Measures

2.2.1. Creativity assessment packet

A creativity assessment packet (CAP) (Williams, 1980) was employed for the current study. CAP is a test packet that consists of three tasks: an exercise in divergent thinking, an exercise in divergent feeling, and the Williams scale. The exercise in divergent thinking includes 12 incomplete figures as stimuli to draw. The examinee is asked to complete the figures in an original way and create a title within a 20-min time limit. The completed drawings are assessed on domains of fluency, openness, flexibility, originality and elaboration. The scoring standards are as followed: each drawing with an easily recognizable figure is scored 1 point for fluency; higher scores in openness are for drawings with sealed stimuli; the more categories of the 12 which the drawings exhibit, the higher the scores will be given in flexibility; the more unique the drawing, the higher the scores in originality; the more symmetrical the drawings, the lower the score in elaboration. The titles are scored based on length, complexity, creativity and humor. In addition to the exercise in divergent thinking, the exercise in divergent feeling is a self-rating creativity questionnaire of 50 items. The scale has scores for curiosity, imagination, complexity, and risk-taking. Consider an item such as: ''If the final page of a storybook is missing, I will make up the story's ending myself.'' The examinee will respond to 3 options: agree, partially agree, or disagree. The Williams scale is an observational rating scale, which is filled out by teachers or parents to evaluate the creative behavior of their children. Since the Williams scale does not comprise the direct product of participants, the scale was not employed in the current study. Lin and Wang (1999) developed the Mandarin edition of the CAP and established its good internal consistency (.765–.877) and test–retest reliability (.489–.810).