


fundamentally flawed. On the contrary, it makes the assumption that it is superior to the non-autistic brain in terms of perception. This implies that interventions should focus not on repairing something broken, nor on alleviating fundamental flaws. Instead, they should target the specific strengths of an individual and use them to improve upon weaknesses in less functional domains. Eventually, these kinds of interventions could complement current interventions, which are far from perfect. 

Original study: Mottron, L., Dawson, M., Soulières, I., Hubert, B., & Burack, J. (2006). Enhanced Perceptual Functioning in Autism: An Update, and Eight Principles of Autistic Perception. *Journal of Autism and Developmental Disorders*, 36(1), 27–43. doi: 10.1007/s10803-005-0040-7

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WHY IS IT IMPORTANT?

The EPF model is able to explain why symptoms that are vastly different (for example, calendar computation and communication difficulties) could result from a single process: specialization in one domain but not in others due to inborn differences in the perceptual process. Another important contribution is that the EPF model does not imply that the autistic brain is

THE RAVEN’S GENIUS

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“Autistic intelligence is underestimated by conventional IQ tests”.

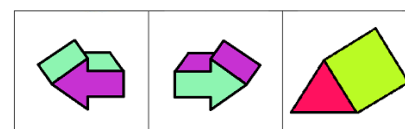
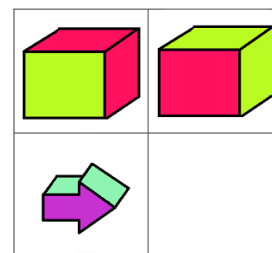
This has been observed in a study conducted by the Montreal Cognitive Neuroscience Autism Research Group.

The idea that cognitive functioning is impaired in autism is largely assumed among the general and scientific communities. Even if some autistics present with strong or savant skills, abnormal neural functioning has been the leading argument to account for these exceptional abilities rather than being considered a true form

of intelligence. To improve our understanding of the level and nature of autistic intelligence, a group of researchers has empirically explored these pervasive beliefs.

INTELLECTUAL PROFILE IN AUTISM

Wechsler intelligence scales are commonly used to assess cognitive potential in clinical and scientific practice. These scales comprise approximately ten verbal and nonverbal subtests soliciting verbal comprehension, perceptual reasoning, working memory and processing speed



skills. Prominent peaks and troughs are commonly observed among autistics on this standard IQ test.

For example, selective impairments are often found in autistics on one of the verbal subtests, Comprehension. In contrast, they typically demonstrate marked strengths on perceptual reasoning subtests (e.g., Block Design). This spiky IQ profile in autism

strikingly differs from the homogenous profile generally observed among non-autistics.

ASSESSING AUTISTIC INTELLIGENCE: A CHALLENGE

All Wechsler subtests are orally delivered and some of them also require oral responses. Oral language skills are therefore a prerequisite to a good performance on this intellectual assessment. Thus, the Wechsler IQ test may fail to capture the true cognitive potential of autistics, given their language and communication atypicalities.

Raven's Progressive Matrices (RPM) is very different test of intelligence in its format and demands. Reasoning, novel problem solving, and high-level abstraction abilities are required to perform well on RPM. The examinee must infer rules, draw up and test different hypotheses and manage simultaneously a hierarchy of goals. Unlike Wechsler, RPM requires minimal instructions and no verbal responses, and thus can be administered to a wider diversity of individuals. Yet RPM has been found to be a highly reliable indicator of intelligence in non-autistics, whose performance on Wechsler intelligence scales and RPM are equivalent.

This was not the case for autistic individuals in the study conducted by the Montreal Cognitive Neuroscience Autism Research Group. Instead there were important discrepancies between

Wechsler and RPM scores in autistic children and adults. Thirty-eight autistic children and twenty-four non-autistic children aged between 6 and 16 years were assessed with both Wechsler intelligence scales and RPM. For the autism group, RPM scores were significantly higher than Wechsler scores, on average by 30 percentile points, with some autistic children showing a discrepancy of more than 70 percentile points favoring RPM. Furthermore, one third of autistic children performed in the range of intellectual disability on Wechsler, compared to only 5% on RPM. Also, whereas a third of the autistic children scored at or

Using a popular test, an autistic adolescent was judged to have an IQ below the 1st percentile (i.e. in the range of intellectual disability). But then he performed remarkably well on Raven's Progressive Matrices, with a score at the 95th percentile. What does the Raven's Genius tell us about autism?

above the 90th percentile on the RPM, only a minority scored in the average range or higher on the Wechsler. Such discrepancies were not observed in non-autistic children, whose Wechsler and RPM scores did not significantly differ. In addition, the study found similar results in smaller groups of autistic and non-autistic adults.

This study demonstrated that the intelligence of autistic individuals may be underestimated by conventional IQ test batteries, such as Wechsler scales of intelligence. It also refutes claims that

autistic abilities are confined to simple perceptual stimuli or isolated low-level "islets of ability" without real utility. To the contrary, autistic potential may better be estimated through the use of RPM, the most complex single test of intelligence, which allows autistics to demonstrate their high-level reasoning and problem-solving abilities.

In conclusion, researchers from the Montreal Cognitive Neuroscience Autism Research Group strongly caution against judging autistic intelligence based solely on IQ scores assessed via popular test batteries such as Wechsler. These assessments may not take into account autistics' atypical cognitive processes and range of abilities, and could lead to an underestimation of the true cognitive potential of autistic individuals. 🌈

Original study: Dawson, M., Soulières, I., Gernsbacher, A. M., & Mottron, L. (2007). The Level and Nature of Autistic Intelligence. *Psychological Science*, 18(8), 657-662. doi: 10.1111/j.1467-9280.2007.01954.x

Related study: Charman, T., Pickles, A., Simonoff, E., Chandler, S., Loucas, T., & Baird, G. (2011). IQ in children with autism spectrum disorders: data from the Special Needs and Autism Project (SNAP). *Psychological Medicine*, 41(03), 619-627. doi: 10.1017/S0033291710000991

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