Tips for Parents: Intellectual Assessment of Exceptionally and Profoundly Gifted Children

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The goal of norm-referenced intelligence testing is to arrive at a greater understanding of a child. Intelligence tests can help describe cognitive performance in a relevant sample of abilities and skills, compare individual performance with normative expectations and developmental benchmarks, and make predictions about areas of potential development and limitations. When used properly, intelligence tests can help parents find an academic environment that will provide a good fit with a child, challenging him or her at a level that permits growth without demoralization. Intelligence tests are required for most gifted and talented placements, but *intelligence tests are only tools* to help you arrive at answers – they are not answers themselves.

In this series of *Tips for Parents*, I am presenting recommendations for consumers of intelligence testing, particularly parents of children who are thought to be highly gifted. It is my objective to provide parents with information so that they may be well-informed consumers of these tests. Throughout this narrative I use common abbreviations for well-known tests: SB5 (Stanford-Binet Intelligence Scales, Fifth Edition), WISC-IV (Wechsler Intelligence Scale for Children, Fourth Edition), WJ III Cog (Woodcock-Johnson, Third Edition Tests of Cognitive Abilities), and CAS (Das-Naglieri Cognitive Assessment System). I provide these recommended tips after having directed a large East-coast gifted assessment program that has served thousands of children.

1. **BE A SQUEAKY WHEEL.** You are more likely to get what your child needs if you ask, and ask persistently. Have a dialogue with your psychological examiner before the assessment. A high profile presence by parents increases the likelihood of responsiveness by educators and psychologists. Most advances in school system special education services have occurred because of activism (and sometimes legal action) by parents. Of course, you need to strike a balance between advocacy and aggressiveness.

2. **DEMAND GOOD "*g*".** Psychometric g, for general intelligence, refers to abilities that are common to most intelligence tests. There is some consensus that g involves reasoning ability. The construct of g is one of the most researched in psychology, and g is predictive of academic success, amount of education one receives, occupational success, and even adult income. For most intelligence tests, g is estimated adequately by an overall IQ score. Individual intelligence test subtests vary widely in the degree to which they are saturated with g. On the WISC-IV, only verbal subtests and Arithmetic have high g loadings (6 out of 15 subtests). To correct this limitation, the WISC-IV includes a special GAI score (discussed below) that is based on subtests that are most saturated with g. On the SB5, all subtests (9 out of 10) but Nonverbal Fluid Reasoning have high g loadings. Other intelligence tests, such as the WJ III Cog, contain subtests that are relatively poor measures of g.

3. **NOT ALL INTELLIGENCE TESTS MEASURE THE SAME THING.** Intelligence tests vary in how well their constituent subtests measure g, but they also contain subtests that measure unique abilities that may be important in understanding your child's profile of intellectual abilities. If your child is mathematically precocious, you need to give the SB5 (which is 20% mathematical reasoning). Mathematical thinking is no longer tapped on the WISC-IV unless the supplemental Arithmetic subtest is given (and it does not contribute to the overall IQ score). If your child has a well-established verbal knowledge base, this is rewarded on the WISC-IV (30% of the test) but not on the SB5 (10% of the test). Psychological examiners have autonomy in selecting the tests they think to be most appropriate for your children, but many will try to accommodate your requests if possible.

4. **BE VIGILANT ABOUT LANGUAGE DEMANDS.** If English is your child's second language, then you run the risk that performance on language-loaded intelligence tests may be artificially depressed. English language tests with complex instructions or open-ended verbal response requirements can put non-English speaking children at a disadvantage. Ask your psychological examiner to explain the impact on second language status in the psychological report. You can also request that the examiner consider giving your child a nonverbal intelligence test (preferably one that has high g) or a bilingual intelligence test.

5. **OLDER TESTS YIELD HIGHER (AND INFLATED) SCORES.** Research on intelligence tests given over the last century has shown that every time a test is renormed on a more contemporary group, the bar is raised. This finding, called the Flynn effect, describes the tendency of newer tests to yield lower scores (presumably reflecting growing intelligence in the general population). Standard scores improve at the rate of about 3 points per decade, so giving your child a test that was normed 30 years ago will inflate his or her overall IQ score by about 9 to 10 points. The Flynn effect is robust across ages (down to infancy) and across cultures, but it has not yet been demonstrated to apply to scores that are at the very high end of the distribution. The best practice and standard in psychology is to administer a test with contemporary, rather than older norms.

6. **KNOW ABOUT THE HIDDEN EXTRAS.** Some tests measure abilities that can easily (and spuriously) depress your child's overall IQ score. For example, performance speed (summarized in the Processing Speed Index) contributes 20% to WISC-IV Full Scale IQ, and our data suggests that over 70% of students applying for gifted placement have Processing Speed Index scores in the average range or below. The CAS contains speed demands on over 50 percent of its subtests and can thereby substantially underestimate IQ if your child is thoughtful, reflective, or deliberate when solving problems. Another example of a "hidden extra" is your child's ability to process language-based sounds that are presented by audiotape. Auditory Processing contributes about 10 to 15% to the WJ III Cog

overall score, although there is no evidence that gifted students demonstrate higher auditory processing.

7. **ASK IF YOUR CHILD WAS CREDITED WITH UNCONVENTIONAL RESPONSES.** Most intelligence tests contain scoring rules (or rubrics) to evaluate the quality of answers to open-ended questions. These rubrics are derived from answers by children given during test standardization and usually include commonplace examples of incorrect (0 points), partial credit (1 point), and full credit (2 point) responses. The rubrics are not intended to include every scorable response. Because highly gifted students are more likely than average students to give low frequency, unconventional responses that are not listed in the manual, you should do what you can to ensure that your child's creative responses were fully credited. One way to do this is to use a psychological examiner who has experience with gifted children and who understands how they think. You can also ask if your child gave any unusual responses to word definitions or open-ended questions, and how credit was awarded for such responses.

8. **ASK FOR THE SPECIAL SCORES.** Conventional IQ scores such as the Full Scale IQ do not always capture exceptional intellectual ability, so you may want to request special scores that have been developed to better capture the quality of your child's intellect. The GAI (General Ability Index) is an optional WISC-IV score that emphasizes subtests with high levels of g and does not penalize for lower working memory or processing speed. The EXIQ (Extended IQ) on the SB5 is capable of generating scores beyond 160, although it is experimental. The SB5 also offers an experimental Gifted Composite Score (which is based on performance on all but two working memory subtests and one nonverbal visual-spatial subtest) and an experimental Nonverbal Gifted Composite Score (which is based on four nonverbal subtests, excluding one nonverbal working memory subtest). Ask your psychological examiner to report both conventional and special scores in any report, explaining the difference.

9. **ASK FOR THE EXTRA SUBTESTS.** Many intelligence tests contain extra supplemental subtests that can be used as a substitute for spoiled subtests or to provide additional information about mental abilities. For example, the WISC-IV has 10 core subtests and 5 supplemental subtests. The supplemental subtests include Information (factual knowledge), Arithmetic (mathematical reasoning), and Picture Completion (nonverbal knowledge and reasoning). For many gifted students, scores will be high on these subtests and can influence interpretation of other subtests. Although additional testing time may be required, administration and interpretation of these subtests can be of considerable value.

10. **BEWARE OF ALPHABET SOUP.** Ask your psychological examiner to explain results and concepts in plain language, instead of relying excessively on technical terms and numbers. For example, one of the most popular intelligence test theories, the Cattell-Horn-Carroll model, has 7 to 10 factors of cognitive ability (each denoted by uppercase G) with designations such as Gf (fluid reasoning

ability), Gc (crystallized knowledge), Gs (for processing speed), and Gq (arithmetic and quantitative reasoning). These terms appear in the WJ III and the SB5. Ask your examiner to explain how these scores apply to your child's intellectual abilities and educational planning.

11. **WATCH FOR LOW CEILINGS.** A ceiling is the highest possible score that can be earned on a subtest, and most intelligence tests have ceilings that may be low for highly gifted children. Technically, a ceiling is defined by the score that would be obtained if every item on a subtest was awarded full credit. But a ceiling effect that underestimates a child's true ability may actually be evident *any time that all subtest items have been administered and the test discontinue threshold has not been reached.* Consider an example with the WISC-IV Vocabulary subtest, which consists of 36 words for the child to define. The words are presented in ascending order of difficulty, and the subtest is discontinued after the child has given 5 consecutive incorrect or vague responses. It is common for highly gifted children to be administered all of the items on this subtest, because they are able to provide a correct or partially correct response to a few of the most difficult words, even their word knowledge may not be broad and deep enough to answer every item correctly. If the discontinue rule has not been invoked, then it is likely that even more difficult words could have been defined if they were presented. Any time your child has earned a score of 19 (the highest possible subtest score on the WISC-IV and SB5) on *any individual subtest,* OR any time your child has been administered all items on a subtest and the discontinue rule has not been reached, that subtest score and the overall composite score to which it contributes will underestimate your child's true ability level, which is higher than the test is designed to measure. Ask your psychological examiner to consider including a statement in the report that test results may underestimate your child's true ability level because of low subtest ceilings.

12. **TRUST INDEPENDENT RESEARCHERS.** Whenever you listen to a speaker or read an informative piece of literature, determine whether he or she is trying to make a sale (either to you or to your school district). Researchers who do not have a financial agenda are more likely to present you with a balanced presentation and acknowledgment of the strengths and limitations of intelligence tests. Test authors and developers are more likely to present a selective, self-serving picture of research. Demand full disclosure, much like researchers into the effects of medications are required to disclose financial support from pharmaceutical companies. You are best informed when you have heard both sides of the story.

13. **YOUR CHILD IS NOT A NUMBER.** Some educators like to rely on single score estimates to think about children, but your child is much more complex than any one number or set of numbers can summarize. Highly gifted children commonly show considerable variability in their developing intellectual abilities, and whenever there is variability in performance, the overall IQ score is a potentially misleading descriptor of cognitive ability. Discourage educators from looking just at the numbers and ignoring the descriptive narrative in an

intelligence test report. Test results should always be interpreted in the context of history and background and salient test behaviors.

14. **PROVE THEM WRONG.** Intelligence tests generate scores that predict probabilities for academic and life success, but they do not represent certainties. In fact, they usually explain less than half of measurable variation in academic success. Other factors, such as determination, drive, and self-discipline, play important roles in academic success. One point of parenting, education, and experience is to select and shape your child's future opportunities, and to find the best way to utilize his or her unique intellectual gifts. There are always many pathways to success, and intelligence tests provide important (but not *definitive*) information in finding the pathways. When experts makes predictions about your child based on test results, listen carefully and consider the information in the context of everything you already know about your child. Then select your course of action, and if the experts predicted anything less than you hope for, prove them wrong!

The intellectual assessment of exceptionally and profoundly gifted children remains a challenge because of the limitations of available measurement tools and the relative rarity of these individuals. There is, however, a considerable amount of useful information that can be generated by widely-used tests, such as the WISC-IV and the SB5. Supplementing these tests with specialized measures such as nonverbal tests (e.g., Raven Advanced Progressive Matrices) or out-of-range tests intended for older students (e.g., the SAT) can help you further understand the potential of your gifted child.