Psychoeducational Assessment

Name: Zenon
Date of Birth: November 20, 1990
Dates of Testing: 9/09/2011, 10/20/2011, 10/27/2011

Basis for Evaluation

Clinical Interview
Nelson-Denny Reading Test
Conner's Continuous Performance Test II (CPT-II)
Learning & Study Strategies Inventory (LASSI)
Wechsler Adult Intelligence Scale-IV (WAIS-IV)
Woodcock Johnson III Tests of Achievement (WJ III-ACH)

Reason for Testing

Zenon was referred for assessment by his advisor for a potential learning disability or Zenon's attention problems. Zenon said that his advisor, friends and family have all noticed problems with his ability to retain information for a significant period of time. Zenon said that he has earned the name "goldfish" because of these experienced deficits. Zenon has a sister who has been diagnosed with Dyslexia and Attention Deficit Disorder. Zenon said that much attention was paid to his sister to accommodate for her disabilities. Zenon said that his deficits were not noticed until later.

Background Information

Zenon is a 21-year-old junior at St. Mary's University. He is currently enrolled full-time and is majoring in Mathematics. Zenon attended pre-school at Higgs, Carter, King Gifted and Talented Charter Academy and then completed kindergarten through 3rd grade at Highland Hills Elementary School in San Antonio, Texas. After 3rd grade, Zenon moved with his family to Oilton, which is outside of Laredo, Texas. In Oilton, Zenon completed elementary school at Oilton Elementary and then attended Broony Middle School and Broony High School. During this time, Zenon attended summer programs for mathematics and logic. Zenon attended these camps of his own free will because he came to see mathematics as a language with rules and processes that he could easily understand. Although Zenon is a native speaker of English, he has experienced pervasive problems in vocabulary, reading and writing. Zenon described his issues as less intense than his sisters, so he never told anyone about the problems and hoped they would go away if he studied harder. In mathematics, Zenon said that he can easily memorize formulas and use those to solve problems. Zenon said that he had excellent mathematics teachers who taught outside-the-box. Zenon's ability to logically reason through a problem is the primary reason that he has made it through college up to this point.

Behavioral Observations

Zenon arrived to all of his appointments early or on time and was consistently well groomed. Zenon was able to stay focused on the examiner throughout all testing sessions and provided articulate answers to questions. Moreover, Zenon was polite and courteous throughout the assessment process and appeared to approach tasks in a serious manner. Zenon remained quietly seated throughout the triage testing and demonstrated focused attention to all measures.

During the administration of the LASSI, Zenon sat quietly and completed all questions. Zenon exhibited thoughtful concentration throughout the administration and seemed determined to choose the correct level of response.

During the CPT-II, Zenon nodded quietly each time he pressed the spacebar and made no comments on the rare occasion that he missed identifying the stimulus.

The Nelson-Denny Reading Test was met with concern by Zenon. He did not complete either section of the assessment – 5 questions were left unanswered on the vocabulary section and 23 questions were left unanswered on the comprehension section.

During the WAIS-IV, Zenon paid close attention to all sections of the assessment and seemed to want to get the answer correct even after the time threshold was reached and announced. Zenon's level of conversation was appropriate for his age and grade level.

These same behaviors were noticed during the administration of the WJ III-ACH. Zenon demonstrated an understanding of the directions during each subtest. Zenon generally persisted with difficult tasks, which is typical for his age and grade level.

Results of Evaluation

Wechsler Adult Intelligence Scale-IV (WAIS-IV)

Zenon's intellectual functioning was measured using the WAIS-IV. This individually administered instrument is based upon the Cattell-Horn-Carroll theory of intelligence. It is a widely used measure of crystallized (learned) intelligence and fluid (problem solving) intelligence. Individual subtest scores are based on a mean of 10 with a standard deviation of 3. The average range of subtest scores is between 9 and 11. The overall mean for Full Scale IQ scores is 100, with a standard deviation of 15. An individual's scores are compared to age based norms to identify patterns of functioning relative to other people. The WAIS-IV identifies individual patterns of cognitive strengths and weaknesses and establishes a benchmark from which to compare academic achievement standard scores. The following table outlines the composite scores and the individual subtest scaled scores that Zenon earned on this part of the assessment which was administered on September 30, 2011.

WAIS-IV Factor Index Scores	Scaled Scores	Percentile Rank	Description
Verbal Comprehension (VCI)	96	39%	Average
Perceptual Reasoning (PRI)	102	55%	Average
Working Memory (WMI)	74	4%	Borderline
Processing Speed (PSI)	71	3%	Borderline
Full Scale IQ	85	16%	Low Average
General Ability Index	99	47%	Average

Verbal Comprehension	Scores	Description
Vocabulary	9	Average
Similarities	7	Low Average
Information	12	Average
Comprehension*	6	Low Average

Perceptual Organization	Scores	Description
Block Design	11	Average
Matrix Reasoning	10	Average
Visual Puzzles	10	Average
Figure Weights*	6	Low Average
Picture Completion*	5	Low

Working Memory	t Scores	Description
Digit Span	5	Low Average
Arithmetic*	6	Low Average
Letter-Number Seq	8	Low Average

Process Speed	Scores	Description
Coding	6	Low Average
Symbol Search	3	Low
Cancellation*	1	Low

* *These scores are not included in the processing of an examinee's Factor Index Scores, Full Scale IQ score, or General Ability Index Score.*

Zenon's Full Scale IQ of 85 falls in the 16th percentile and represents Low Average intellectual functioning. This score is significantly lower than expected given the scores on the Verbal Comprehension Index and the Perceptual Reasoning Index. The score is being depressed by the Working Memory Index of 74 and the Processing Speed Index of 71. Therefore, Zenon's General Ability Index (GAI) of 99 is a better, truer measure of his abilities and will be used for all other "discrepancy" comparisons throughout the assessment. Zenon's index scores range from Borderline to Average. It is clear that Zenon has some pronounced intellectual deficiencies and strengths. Further testing with the Woodcock Johnson-III-ACH helped to fill in how his cognitive deficits are impacting his achievement scores, but the WAIS-IV presents a picture of Zenon's intellectual functioning in broad strokes.

Zenon's strengths are focused around verbal comprehension and perceptual reasoning. His highest Index scores were the Verbal Comprehension Index (VCI; SS=96; PR=39) and Perceptual Reasoning Index (PRI; SS=102; PR=74). The VCI is a measure of verbal conceptualization, knowledge, verbal expression and is comprised of three tests: Similarities (SS=7), Vocabulary (SS=9), and Information (SS=12). The VCI subtests require the examinee to answer oral questions that measure factual knowledge, word meanings, reasoning and the ability to express ideas in words. Zenon also completed the Comprehension subtest (SS=6), but that score was not a part of his overall index scores. The Vocabulary (SS=9) subtest involves the examinee orally defining a list of words, that are presented verbally, and measures the degree to which one has learned to express themselves in an effective manner. The Similarities (SS=7) subtest requires the examinee to verbally identify the relationship between two objects or concepts. The Information subtest (SS=12) requires the examinee to answer questions that address a broad range of general knowledge topics, while the Comprehension subtest (SS=6)

requires the examinee to answer questions about abstract social conventions, rules and expressions. This range of scores (SS=6 and SS=12) may suggest that Zenon is well-versed in general knowledge acquired from culture but may not be successful in applying abstract verbal thinking skills to determine relationships between two items. Zenon's verbal intelligence is most likely what has allowed him to come so far in school and will serve him well as a senior at St. Mary's University.

The PRI, or Perceptual Reasoning scale, assesses one's ability to examine a problem, draw upon visual-motor and visual-spatial skills, organize thoughts, create solutions, and then test those solutions. The PRI score also measures one's ability to define preferences for visual information, with some flexibility when faced with novel or unexpected situations, and a preference to learn by doing. The PRI is comprised of three subtests: Block Design (SS=11), Matrix Reasoning (SS=10), and Visual Puzzles (SS=10). Zenon also completed the subtests for Figure Weights (SS=9) and Picture Completion (SS=5), but those scores are not included in the computation of the overall PRI, which was 102, in the 55th percentile. Matrix Reasoning and Visual Puzzles task the examinee with looking at a prompt and then choosing the element that would best complete the identified pattern or presented picture. Similarly, Block Design consists of examinees using two-color cubes to replicate two-dimensional designs that are either modeled or printed in the stimulus booklet. The Block Design subtest assesses one's ability to attend to problems and exert mental control. The Block Design score (SS=11) indicates a strength in Zenon's attention, concentration and mental control. However, Zenon's results tell us that he has low average to average abilities in analytical and abstract reasoning as evidenced by the range of scores in this index. Zenon's range of scores (SS=5 and SS=11) indicate an average ability to utilize non-verbal reasoning to solve problems but also point to some deficiencies in spatial perception and inductive reasoning. The knowledge to solve the problems presented in this section is not necessarily taught at school.

Zenon's Working Memory Index, WMI, composite score (SS=74; PR=4) is almost two standard deviations below his GAI score of 99. The scores that make up this index are clustered in the Borderline to Low Average range. The WMI measures an examinee's working memory abilities. Specifically, the tasks in the WMI subtests require an ability to temporarily retain information in memory, perform some mental operation on it and then produce a result. The examinee needs to respond to oral stimuli that involve the handling of numbers and/or letters in a step-by-step, sequential fashion and require good non-distractible attention span for success. The two tests that make up the Working Memory Index are Digit Span (SS=5) and Arithmetic (SS=6). Zenon's scores on both subtests for this Index are in the Borderline to Low Average range. In the Digit Span subtests, the examinee is first read a sequence of numbers and is asked to recall aloud those numbers in the same order. After that, the examinee is read a sequence of numbers and is asked to say those numbers back to the examiner in reverse order. Finally, the examinee is read a list of numbers and letters and is asked to recall both in ascending order. In the Arithmetic subtest, Zenon was asked to solve a series of problems within a specified time limit. When comparing Zenon's Arithmetic score (SS=6) and Digit Span Score (SS=5) to the other subtest scores, it shows a pronounced weakness in concentration while manipulating mental mathematical problems – or, a deficiency in working memory.

Woodcock-Johnson III Tests of Achievement (WJ-III-ACH), Standard

The Woodcock Johnson III Tests of Achievement (WJ-III-ACH) is a widely used objective measure of an individual's ability to apply academic knowledge to a wide variety of achievement tests. Like the WAIS-IV, the Woodcock Johnson III Tests of Achievement provides varying levels of information about the test-taker. Scores on this test are broken down into individual subtest scores and more generalized scores on several clusters such as Reading, Oral language, Written Language, and Mathematics. There are 10 tests in the standard battery measure the following areas in accordance with the Cattell-Horn-Carroll theory: Comprehension-Knowledge, Long-Term Retrieval, Visual-Spatial Thinking, Auditory Processing, Fluid Reasoning, Processing Speed, Short-Term Memory and Reading-Writing ability. While the WJ-III ACH subtests are generally untimed; Math Fluency, Reading Fluency, and Writing Fluency are all timed and require rapid processing and answer production.

Special Purpose Clusters	**SS**	**PR**
Oral Language	85	16

Achievement Subtests	**SS**	**PR**
Underscoring Directions	82	12
Story Recall	97	42

Reading	**SS**	**PR**
Broad Reading	81	10
Reading Fluency (Deficit)	61	<1
Letter-Word Identification	88	21
Passage Comprehension	106	67

Written Language	**SS**	**PR**
Broad Written Language	84	14
Written Expression	81	10
Writing Fluency	72	3
Writing Samples	99	46
Spelling	93	33

Math	**SS**	**PR**
Broad Math	102	56
Math Calc Skills	98	45
Brief Mathematics	111	77
Math Fluency (Deficit)	60	<1
Calculation	115	84
Applied Problems	106	66

Other Clusters	**SS**	**PR**
Academic Fluency (Deficit)	50	<1
Academic Skills	97	43
Academic Applications	106	66

Overall, Zenon's scores on the WJ III-ACH were lower than would be expected for someone of his intellectual capabilities. The score report indicates that Zenon scored in the Low Average range for all areas when compared to others his age and academic level; with the exception of his brief mathematics skills which were in the Average to High Average range.

Zenon's cluster scores show that Math Calculation Skills (SS=98; PR=45), Broad Math (SS=102; PR=56) and Brief Mathematics (SS=111; PR=77) are particular strengths for him. Scores from these areas provide a broad overview of an individual's skill level with basic math skills, including computational skills and automaticity with basic math facts. Moreover, Zenon demonstrated an almost innate ability to perform mathematical computations of problems already set up for working.

Academic Fluency

Zenon's lowest cluster score is Academic Fluency (SS=50). The Academic Fluency score is lower than the 1st percentile when compared with others in his age group. This area gives us an opportunity to assess whether Zenon's level of automaticity with basic skills is facilitating or inhibiting academic performance. Zenon's fluency scores for Reading (SS=61; PR=<1), Writing (SS=72; PR=3) and Math (SS=60; PR=<1) are all depressed and fall significantly below the expected score suggested by his GAI score of 99. The fluency scores are based on timed exercises in which the examinee is asked to complete as many problems as possible within a prescribed amount of time. This score is a measure of the automaticity to which Zenon is able to apply his academic knowledge. The scores for Reading Fluency and Math Fluency are clustered in the Deficit range, while the Writing Fluency score is in the Borderline Range. This discrepancy usually signifies a relatively stronger ability to perform motoric writing more successfully than reading quickly and answering true or false to the statement.

Academic Applications and Academic Skills

This is a cluster of subtests that measure the examinee's ability to apply academic knowledge in different areas. The subtests that comprise the Academic Application cluster are Passage Comprehension (SS=106; PR=67), Applied Problems (SS=106; PR=66), and Writing Samples (SS=99; PR=46) and all are untimed. Zenon's Academic Applications cluster score is 106 (PR=66). The Academic Skills score provides a general, basic skills achievement level that can help determine the level of individual functioning and can help determine whether the examinee's level of skills are similar to or variable across academic areas. Zenon's Academic Skills score is 97 (PR=43) which is clustered with the other scores in the average range.

Nelson-Denny Reading Test

	Standard Score	***Percentile***
Vocabulary	94	33
Comprehension	74	4
Reading Rate	62	1

The Nelson-Denny Reading Test is comprised of two subtests, Vocabulary and Reading Comprehension. Information provided by this test is often a good indicator of the components of reading ability including: vocabulary, reading comprehension, and reading speed. Zenon has a reading rate (SS=62; PR=1) in the deficit range. Once again, this score is significantly lower than expected considering Zenon's GAI score of 99. Zenon's vocabulary score is in the Average range, but his measured reading comprehension score is in the Borderline range, which is a span usually indicating disordered processing speed. It is important to note that time ran out while Zenon was taking the Reading Comprehension subtest. This "timing out" significantly affected his final score.

Conner's Continuous Performance Test (CPT)

The Conner's Continuous Performance Test (CPT) is a computerized test often used to screen for potential attention problems. The test flashes a series of letters across the screen and the examinee must respond quickly and accurately to the stimuli while inhibiting their response to the target stimuli. The test measures sustained attention, response style, and how quickly one adapts to changing stimuli. Results from the Conner's indicate that there is a 56.99% chance that Zenon does not have an attention problem. Zenon's overall mean reaction time (RT) was exceptionally good and sustained over the course of the assessment in comparison to the normative group average, which indicates good CPT performance and no potential attention problems.

Diagnostic Impressions

Axis I: 315.9	Learning Disorder Not Otherwise Specified (Processing Speed & Working Memory Disorder)
Axis II:	No Diagnosis
Axis III:	None
Axis IV:	Academic difficulties, some underreported anxiety
Axis V:	GAF=65

Discussion

Zenon presented for assessment to St. Mary's Psychological and Testing Services center seeking information about his reported difficulties in classes when it comes to completing homework and comprehending information in lectures in such a way as to prepare for exams. Zenon is majoring in mathematics at St. Mary's University and is classified as a college junior.

Overall, Zenon's cognitive abilities tested from the Deficit to the Average range, with significant strengths in the areas of Verbal Comprehension and Perceptual Reasoning, both of which were representative of Zenon's Generalized Ability Index of 99. The WAIS-IV showed a wide range of scores that were depressed by the obtained scores for Working Memory and Processing speed.

Similarly, Zenon's scores on the WJ III-ACH indicate deficiencies in the broad measures of the fluency clusters. Specifically: Academic Fluency, Writing Fluency, Math Fluency and Reading Fluency were all in the deficit range. The WJ III-ACH did highlight significant strength in

Zenon's chosen major of mathematics when looking at his high scores in Calculation and Applied Problems.

The earned scores on the Nelson-Denny Reading Comprehension test ranged from the Deficit to the Average range; deficits highlighted on the WJ III-ACH Reading Cluster. The Nelson-Denny indicated a wide range of scores; his score on reading rate supports his processing speed and working memory (WAIS-IV) deficits.

The LASSI scores indicate that Zenon has a positive attitude about school but has some anxiety about performing to his fullest potential. Anxiety, Concentration, Motivation, Self-Testing, Selecting the Main Idea, Study Aids, Time management and Test Strategies are areas that should be addressed immediately to ensure that Zenon is able to make the most of his abilities to solve complex problems without running into the timing problems that depressed some of his scores.

Recommendations

Given that processing speed and processing auditory material is an issue for Zenon, he would benefit from the following:

a. Time-and-a-half on tests so that he can demonstrate the full extent of his knowledge

b. Testing in a quiet, distraction free environment

Zenon will benefit from repeated instruction and the development of self-talk:

a. Quietly reading or talking aloud to self while working may help him access previously learned information and better understand new material

b. Echo activities:

    1. These activities develop inner language skills through rhythm and rhyme. Start with a small amount of text and gradually build up to textbooks. For example, find a poem and tap out the syllables as one recites the poem to self.

_____ _____

Doctoral Practicum Student Post-Doctoral Fellow

_____

Clinical Director