LifeStance HEALTH

Neuropsychological Evaluation Report

Name: Bo Shang
Date of Birth / Age: 6/6/1988 (29 yo)
Education: 16 years completed

Dates of Contact: 8/30, 9/5 & 9/19/2017
Neuropsychologist: Adele Haber, Ph.D., ABPP

Reason for Referral & Background Information:
The client is a 26-year-old man who sought neuropsychological evaluation to assess current cognitive and emotional status in the context of cognitive concerns in order to guide treatment planning. The information reviewed below was obtained during clinical interview with the client.

On interview, the client reported a pattern of longstanding cognitive difficulties that have started to have a negative impact on his academic and occupational performance. According to the client, these difficulties came to a head in July when he developed a panic attack. He was worked up at Lahey Hospital on 7/17/2017, but no physical cause was identified for his symptoms. He stated that he believed "everything could be solved with willpower" alone, but came to realize that he needed some help.

The client described a history of longstanding difficulties as well as areas of strengths that developed over time. He indicated that his family moved to the United States from Beijing when he was 8 years old, and his early difficulties adjusting to school were felt to reflect the transition to speaking English and adapting to American culture. However, he recalls that he did not realize that he was supposed to make friends with other children even when he lived in China. He reported that he was disciplined for not following directions in school, despite his efforts to do so. Although he intended to follow through with tasks, he was easily distracted and sidetracked. If he tried to stay on a particular task, he perceived his brain as "sending me negative signals," and he would develop a headache. Although he tended to develop a very narrow focus of interest and become obsessed about a particular topic or activity, he still could not stay on task and abandoned his interest after a brief burst of activity. At other times, he struggled to keep his attention and "spaced out constantly" during school. Although his parents were highly organized ("to the point that it is not logical"), the client has never been able to learn effective organizational skills. He had difficulty reading others' emotions and had problems managing social interactions. As school progressed, he struggled to read homework assignments and performed variably in school as a result, though he learned some "shortcuts" that allowed him to perform reasonably well in most classes. He earned very strong SAT scores (780 math, 670 verbal, 730 writing), stating that he tested well on standardized tests.

The client described a rather complex history of academic and occupational endeavors in the years following secondary schooling. He attended Tufts University as an undergraduate, studying biomedical engineering. Although he did well initially, he struggled when the courses became more advanced. He developed headaches after working for a short time and needed to sleep, and his junior year grades suffered as a result. The client reevaluated his options during senior year and decided to focus on philosophy (which he described as "impossible to fail"), earning enough credit for a Bachelor's degree in engineering, though he did not finish the biomedical engineering requirements.

After graduating from Tufts, he began working in the financial sector, first as an intern in an investment bank in Hong Kong and then as the development manager of a financial tech start-up. In these positions, he often experienced short bursts of "extremely high performance" that was typically stronger than that of

his coworkers. This burst tended to be short-lived and unsustainable, and his performance inevitably declined.

The client started an MBA program in Sydney, Australia, in February 2015 after completing a brief pre-MBA internship in Hong Kong that he described as "super easy." In retrospect, he realized that he started experiencing identifiable symptoms of panic and anxiety after starting graduate school, which he attributed to the need to give presentations twice per week. He stated that he was not doing well in the program but did not recognize that he was having trouble. He indicated that his "health" worsened after one semester, but he was able to function. However, he decided to drop out of graduate school after recognizing "common sense" that this program was not a good fit for him, and discovering "the power of artificial intelligence" led him to want to pursue a career in computer science.

The client enrolled in a post-baccalaureate program in computer science at Tufts University in January of this year after taking online refresher courses in computer science. Unfortunately, since starting this program, his panic has started to "spiral." The client reported that he started developing headaches after working for only half an hour (even when consuming three to four two-liter bottles of caffeinated soda), and he was easily distracted. Although his skill in computer science improved, he continued to have "time inefficiencies" that induced panic. He had to drop his spring classes because his anxiety became so overwhelming that he had difficulty making it to class. His panic improved during a break between semesters but increased dramatically when he started taking summer classes, and he had to drop out again after developing panic so severe that he sought medical attention, as above. The client noted that this was the first time he devoted everything to his coursework but was unable to learn the information because of his own efficiencies.

Since the client was seen at Lahey, he has worked with a variety of health professionals to address his symptoms. He was started on Prozac, though he stated that he found this ineffective, and he discontinued it after two weeks. Clonadine made him feel tired. He sought another opinion from a different primary care physician and was started on Adderall, which had an immediate and dramatic effect on his anxiety. He indicated that he was able to concentrate better, and his panic was considerably better within two weeks. After he started working with a nurse practionner, the client asked to be started on lithium, which improved his symptoms further (though he noted that it may have been a placebo effect).

Emotional Status:
The client reported that his mood is much improved, and he feels happy now. He denied current anxiety other than normal "excitement," and he denied experiencing most symptoms of depression. He described his mood as "average" for the first 25 years of his life and stated that he made a conscious effort to be "happy" after that. His parents told him that he had mood swings as a child, but he does not recall this. He denied any history of excessively elevated or low mood. In retrospect, the client has realized that he is apt to experience anxiety if he is not able to perform well. He also described a pattern of taking on more than he can manage because he does not recognize his own limitations and becoming overwhelmed as a result. Family mental health history is notable for depression in his father and anxiety in his mother, and he stated that his parents both have obsessive-compulsive symptoms such as a need for a high degree of organization. The client also believes his father has similar attentional difficulties as himself, but there is no diagnosed family history of ADHD.

Behavioral Health History:
The client reported typically drinking alcohol three to four times per week, three to four drinks at a time, though he has not been drinking at all since experiencing panic symptoms. He denied any history of problem drinking. He indicated that he experimented with both nicotine gum (for stimulation) and marijuana to manage panic symptoms this past year, but he denied any other history of tobacco or illicit drug use. He drinks two to three cups of caffeinated soft drink per day, which is significantly less than in

the past, when he was consuming up to three to four two-liter bottles per day. The client exercises once to twice per day, and he is trying to exercise for two hours each day.

Medical History:
Developmental history was reportedly normal. He has been relatively health and denied experiencing any significant medical problems or conditions other than headaches, as above. He denied any history of neurological conditions or insults, including concussion, and there is no family history of neurological problems. He is currently prescribed Adderall IR 15 mg three times per day (he stated that he does not want the "commitment" of taking an extended release formula) and lithium 300 mg twice daily, both of which are new medications this summer. He denied current physical symptoms and stated that have his headaches have entirely resolved now. Previously, he developed pain throughout his head that was accompanied by nausea and malaise that persisted until he slept. He stated that his appetite was "terrible" while he was suffering from panic, stating that he ate candy frequently, and his appetite has not recovered. He reported that he needs 4000 calories per day and must drink supplements in order to take in enough calories to meet his needs. On the other hand, he described his sleep as highly variable. He may sleep two to three hours one night followed by eight to 12 the next night, returning to two to three hours the following night because he cannot fall asleep. In general, he has difficulty falling asleep unless he tires himself out during the day. Nonetheless, he described his energy level as "extremely good" throughout the day considering the problems with his sleep.

Social and Educational History:
The client was born in Beijing, China, but his family moved to the Boston area when he was 8 years old. He grew up speaking Mandarin at home and learned English after moving to the United States. As noted above, he had some difficulty adjusting to a new language and culture after immigrating to the United States, but he also had trouble relating to peers in China. Other than some tutoring in English, the client did not need resource classes or academic accommodations of any kind. He obtained strong scores on the SAT (1450/1600), and he attended Tufts University, where he earned a Bachelor's degree in engineering. He started an MBA program in Sydney, Australia, but dropped out after his first year. He is currently enrolled in a post-baccalaureate program in computer science at Tufts University, and he is interested in working in artificial intelligence. The client has worked in a variety of financial and financial/technology jobs after graduating from college, but he is not working now, and he noted that he has never held a job for longer than eight months. He has never been married and is not involved in a romantic relationship at this time. He currently lives with his parents and is independent for all activities of daily living, though he noted that he rarely left the house during the time of his most intense panic, between April and July of this year.

Assessment Methods: Clinical interview, review of records provided by the client, administration of a comprehensive neuropsychological test battery, and review of test data. A listing of tests administered and associated scores is included on the data summary sheet attached at the end of this report.

General Behavior and Presentation:
The client arrived on time for the evaluation and was appropriately dressed and groomed. His gait was within normal limits, and both hearing and vision appeared adequate for meeting the demands of testing. Initially, the client appeared extremely anxious, his eyes opened so wide that the sclera of each eye was visible on all sides. He settled in somewhat as the interview continued. Conversational speech pressured and rather frenetic, and he tended to speak in a precise and at times idiosyncratic manner. No obvious word-finding problems were noted, and the client spoke English fluently despite the fact that English is not his first language. He was a very scattered historian and although he provided a wealth of details about his history, he did not always frame these details in a context, and he tended to jump from one subject to another. Thought process was logical but somewhat concrete and tangential at times, but there was no evidence of psychosis. His mood was reportedly euthymic, and his affect was quite bright.

On the day of the testing, the client arrived 20 minutes late because he could not find his keys, but he called ahead to alert staff that he would be late. As with the interview, he appeared to be quite anxious, especially initially, but he was quite pleasant and cooperative throughout the day. His pace was variable throughout the day. At times he worked rapidly and impulsively whereas at other times his pace was slow, and he expressed apprehension about some timed tasks, which appeared to have an impact on his performance. For example, he slowed his performance on a visual puzzle task after being told that there was a time limit but no bonus points for more rapid performance, and his performance improved significantly. At times, the client expressed concern that a challenging task might lead him to develop a headache. At the start of the test, the client was very confident about his ability to perform well on tasks, but his confidence eroded on some challenging tasks in which he did not perceive his performance as strong (e.g., memory testing), which interfered with his performance on that task as he continued it. After the practice trial for a continuous performance task, which was administered within the first hour of testing, the client became nauseated and asked to take a break, interrupting the delay for two memory tasks (CVLT and RCFT). The client reported that he had researched neuropsychological testing following the interview session and was familiar with the demands of the CPT, and he feared that he would not perform well because he felt mentally fatigued from the prior tests. However, after a 15-minute break, the client was able to resume testing without further incident. On the whole, the client appeared to put forth good effort throughout the evaluation, and results are felt to be a valid estimate of his current cognitive status on most tasks. Consistent with that notion, he passed all stand-alone and embedded performance validity tasks.

Test Results:
****Normative scores on most neuropsychological tests are based on samples of native English-speaking individuals who were born and raised in North America. Furthermore, while the client has a firm understanding as to the nature and purpose of neuropsychological testing, there are likely to be cross-cultural confounds that would limit the validity of some measures. Thus, interpretation of these test results should be tempered by these factors and, when cultural issues make direct normative comparison inappropriate, these scores should serve only as baseline performances to be compared with future evaluations.****

Intellectual/Academic Functioning
Higher-order intellectual functioning was superior (General Abilities Index = 125) with a significant observed between his superior higher-order verbal skills (Verbal Comprehension Index = 125) and high average higher-order visuoperceptual skills (Perceptual Reasoning Index = 113). Immediate auditory attention was high average (Working Memory Index = 117), but speed of information processing was considerably weaker, falling in the low average range (Processing Speed Index = 88). These scores, except PSI, are consistent with or stronger than estimates of intellectual functioning based on demographic variables and reading level, which predict upper end of average intellectual functioning.

On a measure of reading comprehension in which the client was asked to read lengthy passages, his reading rate was borderline deficient considering his level of education. He was unable to complete the task within the standard 20-minute time limit, with only 25 of 38 items completed with four errors (borderline deficient; 10.0 grade equivalent). When allowed extended time, the client completed the task in just under time and a half (29 minutes, 23 seconds total time) with no additional errors, improving his performance to the low end of average range (14.7 grade equivalent) considering his level of education. During the feedback session, the client reported switching strategies during the task such that he read the questions first and scanned the passages for the correct response.

Processing Speed

The client's score on the Processing Speed Index of the WAIS-IV was a relative weakness as compared to other indices of intellectual functioning. Speeded symbol matching fell in the low end of the average range with one error noted. Speeded decoding of numbers into symbols was low average, with one self-corrected error noted. On a more difficult decoding task that requires a greater degree of information processing, the client's performance fell to the borderline deficient range. Finally, visuomotor sequencing was mildly deficient on a trail-making task, and the client was noted to have difficulty locating targets. In addition, he appeared to have difficulty adapting when the examiner prompted him to be certain to extend his line until it hit all of the target circles (rather than drawing a line to the vicinity of the target before searching for the next one).

Attention/Working Memory
The client's score on the Working Memory Index of the WAIS-IV is high average. Immediate auditory attention was high average a digit span task (7 digits forward, solidly average; 6 digits backward, high average; 7 digits sequencing, upper end of average). He tended to recite the digits rapidly, self-correcting errors so quickly that it was difficult to discern his final response. Mental arithmetic was superior. First trial list learning, which also taps working memory skill, was solidly average.

On a continuous performance task (CPT), which assesses sustained attention and vigilance, the client's performance was extremely slow (> 3 standard deviations above the mean considering his age and gender), erratic (> 2 standard deviations above the mean), and inattentive. He made a highly elevated number of omission errors, all of which occurred in the fastest tempo conditions. The majority of his omissions (8 of 11 errors) occurred near the end of the task, and his response time slowed as the task continued, indicating problems with sustained attention and vigilance. However, he made considerably fewer commission errors than is typical (2 errors, >1.5 standard deviations below the mean). He responded much more slowly as the tempo of the stimulus presentation slowed.

Note that the client became very agitated following the practice trial of the CPT and had to take a break for 15 minutes to use the bathroom and eat a snack. He reported recognizing the task from his research online and stated that he feared that he would not be able to focus for a lengthy period of time because he was feeling drained from the tests administered earlier (this task was administered within the first half hour of testing). However, he was able to resume testing without incident once he finished his break.

Language
Note that the client is not a native speaker of English, though he has lived in the United States for most of his life and is fully bilingual in English and Chinese. Nonetheless, some language performances may underestimate language skill as a result of his status as a bilingual English speaker.

With that caveat in mind, the client's score on the Verbal Comprehension Index of the WAIS-IV is superior, a relative strength as compared to higher-order visual perceptual skills. Word knowledge, verbal concept formation, and general fund of information were all superior. On verbal fluency tasks, the client performed in the mildly deficient range when asked to generate words based on first letter and in the borderline deficient range when asked to generate words based on semantic category. Finally, confrontation naming was slightly weak, falling in the low average range, likely reflecting his status as a bilingual English speaker.

Visuospatial
The client's score on the Perceptual Reasoning Index of the WAIS-IV is high average, weaker than higher-order verbal intellectual functioning. Visual construction fell in the upper end of the average range on a block design task. Visual synthesis and mental rotation was high average on a visual puzzle task. There was some inconsistency in his performance because he was overly concerned about speed earlier in the task. After he obtained clarification about how the task was timed (i.e., for a time limit but with no

bonus points for working faster than the time limit), he worked more slowly and cautiously, leading to improved performance. He performed in the superior range on an untimed matrix reasoning task that measures visual pattern recognition. The client's copy of a complex figure was within normal limits. He approached the task in a systematic manner and had a good appreciation of the figure's overall gestalt. A mild tremor was noted in his drawing, but the client reported that this is longstanding for him.

Learning and Memory
Immediate recall of a 16-word list across 5 learning trials was borderline deficient overall (7, 7, 8, 8, and 8 of 16 words recalled on trials 1-5, respectively). Although his first trial performance was solidly average, he demonstrated a flat learning curve and tended to recall words from the end of the list preferentially, which reflects a somewhat passive approach to list-learning. His recall of a distractor list presented immediately following the conclusion of the final learning trial was considerably lower than his average first trial of the target list (2 of 16 words, moderately deficient, as compared to 7 of 16 words, average), indicating significant proactive interference of the original list. Nonetheless, he was able to recall 7 words on free recall after the completion of the distraction list, a borderline deficient performance overall but within normal limits considering his final learning trial performance of 8 words. With cueing, his performance declined to six words, and he made two intrusion errors. Following a longer delay, the client only recalled 3 words and made 4 intrusion errors, which is well below expectation, and although his performance improved slightly to 5 words with cueing, he also made 3 additional intrusion errors. Delayed recognition was compromised by a very large number of false positive errors, primarily words from the distractor list as well as words from the same semantic category as the original list (16 of 16 recognition hits but 14 false positive errors).

During the feedback session, the client reported that he became discouraged by what he perceived as his weak performance on the first trial of the above task (which was actually average), stating that he expected to be able to recall most of the list in a single trial. He became increasingly discouraged as the task continued, and he started to make guesses, resulting in intrusion and false positive errors. Note that the long delay interval was longer than typical because of the client's need to take a break before starting the CPT (see the Attention/Working Memory section, above), though the difference is unlikely to have had a significant impact on his performance.

In contrast, the client demonstrated much stronger recall of story information. In the immediate condition, his recall fell in the low end of the average range. He was only able to recite details from the first half of the initial story and stated that in trying to recall all of the information verbatim, he was unable to attend to the whole recitation. He performed better on both learning trials of the second story, but his performance did not improve with the second recitation of that story. Following a delay, his overall recall fell in the low end of the average range. He retained only vague information about the first story (32% retention), but he had perfect retention of the second story. Recognition of story information was low average. Again, his recognition of information from the first story was relatively weak, falling at approximately chance level, but he performed better recognizing information from the second story, which he had learned over the course of two immediate recall trials (12 of 15 recognition items correct).

Recall of a complex figure the client had previously copied was borderline deficient following both short and long delays despite a relatively good and systematic copy of the original figure. His resulting drawings reproduced the figure's gestalt well but lacked detail. Delayed recognition of the figure's component parts was also borderline deficient. As with the verbal list learning task described above, the time interval of the long delay was longer than the standardized administration because the client needed to take a break following administration of the CPT. However, his long delay and short delay recall drawings were nearly identical, with no loss of information despite the longer delay interval.

Executive Functioning

Self-initiation was mildly deficient on a phonemic fluency task, though the client is a bilingual English speaker, which may have had an impact on his performance. Response inhibition was average on a Stroop task once correcting for very slow word reading and color identification when there was no interference. The client reported that he tried a similar task online and made many impulsive errors, so he adjusted his strategy accordingly and worked slowly but carefully to prevent errors. He performed in the borderline deficient range on an alternating trail-making test that assesses cognitive flexibility, with two sequencing errors noted. This is consistent with his performance on the "control" task in which he did not have to alternate between sequences. Novel problem solving and set-shifting ability was average overall on a card-sorting task in which the client was asked to generate and alternate between sorting strategies based on performance feedback; however he was slow to generate the first category due to what he characterized as "impulsive" errors initially before approaching the task in a more "logical" manner. Abstraction ability was superior on both verbal concept formation and visual pattern recognition tasks. Qualitatively, mild executive dysfunction was noted on other tasks administered throughout the evaluation including impulsivity and cognitive rigidity.

Self-Report Measures

Cognitive Status

On an ADHD inventory, the client endorsed clinically significant symptoms of inattention (9 symptoms) but only borderline symptoms of hyperactivity (4 symptoms) during childhood, and he indicated that these symptoms had a negative impact in multiple functional domains. Regarding current symptoms, the client endorsed clinically significant hyperactivity (7 symptoms), but he did not endorse clinically significant symptoms of inattention (3 symptoms). Again, he indicated that these symptoms have a negative impact across a number of different functional domains and had an onset in early childhood.

The client was administered a questionnaire assessing various autism spectrum characteristics. His overall score on this measure was mildly elevated, indicating mild autism spectrum features (AQ = 28). Qualitatively, the client endorsed significant problems with social skills, attentional switching, and ability to use imagination.

Emotional Status

The client's responses to an inventory of depressive symptoms over the past two weeks indicated minimal depressive symptoms (BDI-II = 1). On a screen for bipolar depression, his responses were not concerning for underlying hypomania. On a measure of anxiety symptoms, the client's responses indicate lower than typical anxiety complaints (AMAS-C = 35T). He also endorsed very few items on an inventory assessing obsessive compulsive symptoms. He endorsed mildly elevated doubting compulsions without associated distress.

Finally, the client completed the MMPI-2-RF, a self-report inventory of current emotional status and personality traits. His resulting profile was defensive, indicating that he had difficulty admitting to minor faults to which most individuals will readily admit, and he portrayed himself as remarkably well adjusted. As a result, his clinical profile, if taken at face value, would suggest remarkably low levels of negative emotional experiences and a global sense of physical wellbeing. His clinical profile did indicate mild social avoidance and a tendency to be socially introverted and disengaged. His responses also reflect a tendency to be behaviorally constrained.

Impressions:

The client's neurocognitive profile is generally strong with mild deficits noted in processing speed, sustained attention, and aspects of executive functioning. His performance was also below expectation on most memory measures, in part because he attempted to recall information verbatim and was unable to do so. Significant executive dysfunction was noted on a verbal list-learning task including problems with organization of information, proactive interference, intrusion errors, and problems with source memory.

He performed better on a story memory task, but his retention of information was variable. Otherwise, the client performed in the average to high average or superior range across most measures of working memory, language skill (once considering that English is the client's second language), visuospatial ability, and word reading. Higher-order intellectual functioning was superior, with significantly better developed verbal (superior) as compared to visuoperceptual (high average) skills. Although word reading was high average, reading speed was very slow on a lengthy reading comprehension task. He was only able to complete the task with 50% additional time, but his comprehension was average. On ADHD inventories, the client endorsed clinically significant symptoms of inattention currently and during childhood, but he endorsed only borderline significant symptoms of hyperactivity during childhood and clinically insignificant hyperactivity currently. His responses to an autism questionnaire indicate mild autism spectrum tendencies. Finally, regarding emotional status, the client reported improved mood and anxiety after recurrent panic attacks this past summer while in school. On various inventories of emotional status, he endorsed very low levels of both anxiety and depression, and his MMPI-2-RF profile was notably defensive.

Taken together, findings from cognitive testing in combination with the client's self-report during the interview and on questionnaires are consistent with a diagnosis of attention deficit/hyperactivity disorder, inattentive subtype. The client has a longstanding history of problems with attention dating back to childhood, establishing the developmental timeline necessary for this diagnosis. Cognitive test findings indicating deficits in sustained attention, processing speed and executive functioning are also consistent with the cognitive profile typically associated with ADHD.

In addition, the client described a history of difficulty establishing peer relationships and problems with social skills dating back to childhood and stated that although he was bullied by his peers, he did not realize this until later and was not bothered by it. He indicated that he often made overly blunt or impolite statements until he made a concerted effort to reduce this behavior. He also reported a history of developing intense and narrow interests as well as cognitive rigidity that has been a factor in his anxiety symptoms. His self-report on an autism questionnaire indicates problems with attention switching, social skills deficits, and limited use of imagination. These characteristics, along with the unusual nature of some of the client's symptoms, indicate that the client may also have features of Asperger's disorder. His panic may reflect "meltdowns" that are common in individuals who are "on the spectrum" rather than a traditional anxiety disorder. Alternatively, his insight regarding underlying psychological processes may be quite limited and difficult for him to articulate due to a combination of features of Asperger's disorder and/or cultural aspects of his upbringing. In general, there was a disconnect between the frenetic nature of the client's presentation—which appeared hypomanic at times—and his lack of endorsement of any symptoms of depression, anxiety, hypomania or mania. He was also noted to engage in obsessive research between sessions about diagnostic possibilities discussed during the prior session (and about neuropsychological tests and what they measure).

Diagnostic Considerations:
F90.0 Attention deficit/hyperactivity disorder, inattentive subtype
F41.9 Anxiety disorder, unspecified
Rule out Asperger's disorder
Rule out mood disorder

Recommendations:

1. Continued treatment with psychostimulant may be appropriate, though the client may wish to consider whether use of an extended release formula is more appropriate. I recommend the client consult with a psychiatric prescriber and discuss the issues raised above in order to determine how best to conceptualize treatment.

2. I recommend the client work with a psychotherapist who has experience working with individuals who are on the autism spectrum. In general, he may respond best to an approach that is relatively concrete that focuses on skills training (e.g., relaxation techniques for managing anxiety, social skills training, assistance with helping the client identify and manage emotional reactions).
3. The client may wish to consider participating in cognitive rehabilitation therapy (CRT) to help him find additional strategies for managing his cognitive difficulties.
4. I strongly recommend the client investigate services available to him through the Asperger/Autism Network (AANE.org), a local Asperger's advocacy group that provides services such as life coaching to help those on the high functioning end of the spectrum transition into adulthood effectively. For example, he may be a good candidate for their life coaching program.
5. I recommend the client work to establish a regular pattern for sleeping, eating, school work, and leisure time. In particular, the client should strive to sleep at regular intervals, avoiding the pattern of alternating under- and over-sleeping. By establishing a regular pattern, his body will be more in synchrony with his activities, and he may find it easier to manage his daily tasks. In addition, these regular patterns will promote good health.
6. I recommend the client continue to exercise on a regular basis for the emotional, stress relieving, cognitive, and physical benefits it provides.
7. The client will need academic accommodations in order to address some of the cognitive impairments noted on this testing so that he can compete on a level playing field with other students, and I encourage him to take advantage of these accommodations as needed:
    - Extended time on tests (time and a half)
    - The option to take exams in a distraction-free environment
    - Access to lecture notes and/or note-taking services
    - Access to one-on-one tutoring as needed
    - Access to an academic advisor who can meet with the client on a semi-regular basis to give him explicit information and feedback about steps he must take and concerns that arise. Such an advisor may be able to mentor him about how to approach other faculty members for assistance and answer questions or concerns that the client may have as he learns to advocate for himself.
8. When working with others, it might be helpful for the client to have a conversation about the need to be direct with him. Others who interact with the client should say what they mean and mean what they say when they talk to him, and they should recognize that he may not pick up on subtleties or have trouble "reading between the lines" to understand messages that are not explicitly stated. He may have difficulty navigating a workplace in which office politics are important.
9. The following suggestions may help the client improve work performance:
    - Utilize routine, structure and reminders in his environment. It is suggested that the client consistently use a memory aid such as a day planner or calendar. He should also try to maintain a regular and predictable schedule for managing daily tasks.
    - He should make a prioritized "to-do" list daily to help him stay on track. Items on the list should be concrete and capable of being completed within a single day. For example, rather than listing "Write paper" as a line item, break the task into smaller pieces and list those that can be accomplished that day (e.g., "find 3 resources for paper;" "write introductory paragraphs for essay").
    - It may be helpful for the client to utilize productivity apps on his phone to help him manage daily reminders and to improve prospective memory performance (i.e., remembering to remember). Due for iPhone and Life Reminders and Just Reminders for Android are examples of apps that are designed for this purpose.
    - Break large or seemingly overwhelming projects down into smaller, more manageable steps to ensure optimum performance throughout the entire project. For multi-step

projects, he should attempt to reduce the task into a set of instructions or steps as a checklist, marking each one off as it is completed.

- It may be helpful to initiate a task by picking a very small and easily accomplished step initially, which allows him to get into set for the task without becoming overwhelmed.
- Remove distractions from his immediate environment. Simple behavioral strategies include closing one's eyes when listening to verbal information and working in a quiet, clutter-free workspace.
- The client may want to use a social media blocking app or similar program to prevent himself from becoming sidetracked while working.
- The client should turn off any computer or phone alerts that might distract him from his work, scheduling specific time periods in his day where he can check texts and emails.
- Take well-timed (every 30-45 minutes), brief breaks (1-2 minutes) when working on tasks requiring sustained mental effort.
- He may wish to use a structured approach, such as the Pomodoro technique, to create short blocks of work time set off by brief breaks. In the Pomodoro technique, an individual works for 25 minutes without distraction, followed by a brief 2-3 minute break. After four "Pomodoros" are completed, the individual takes a 15-30 minute break. For more information, the client can read this summary: http://lifehacker.com/productivity-101-a-primer-to-the-pomodoro-technique-1598992730.
- Perform only one task at a time, and follow the task through to completion prior to beginning the next task.

10. I recommend the client learn more about ADHD and ADHD treatment (e.g., *Driven to Distraction* by Edward Hallowell). The CPA website has a list of recommended books for learning more about coping with ADHD under the "Resources" tab (http://www.commpsych.com/resources/).
11. As a reference for coping with Asperger's disorder, I recommend the client consult the book *Nerdy, Shy, and Socially Inappropriate: A User's Guide to an Asperger's Life* by Cynthia Kim.

The above findings and recommendations were discussed with the client during a feedback session on 9/19/2017. Please feel free to contact me at (617) 259-1895 if any questions or concerns arise.

Adele H. Haber, Ph.D., ABPP
Clinical Neuropsychologist
Board Certified in Clinical Neuropsychology

ADULT SUMMARY SHEET

Client Name: Bo Shang **Age: 29** **DOB: 6/6/1988** **Test Date: 9/5/2017**
Education: 16 **Handedness: R** **Psychologist: Adele Haber, PhD**

Z-SCORES	SCALED SCORE	STANDARD SCORE	T-SCORE	PERCENTILE	DESCRIPTOR
≥2.0	≥16	≥130	≥70	≥98	Very Superior
1.5	14-15	120-129	64-69	91-97	Superior
1.0	12-13	110-119	57-63	75-90	High Average
-0.5-+0.5	8-11	90-109	43-56	25-74	Average
-1.0	6-7	80-89	37-42	9-24	Low Average
-1.5- -2.0	5	70-79	30-36	3-8	Borderline
<2.0	≤4	<70	<30	≤2	Extremely Low

Intelligence / Global Cognitive Functioning

WAIS IV (Wechsler Adult Intelligence Scale- Fourth Edition)

Verbal Comprehension Index	SS	Perceptual Reasoning Index	SS
Similarities	14	*Block Design*	11
Vocabulary	15	*Matrix Reasoning*	14
Information	14	*Visual Puzzles*	12

Working Memory Index	SS	Processing Speed Index	SS
Digit Span	12	*Symbol Search*	8
Arithmetic	14	*Coding*	6

	Composite Score
VCI (Verbal Comprehension Index)	125
PRI (Perceptual Reasoning Index)	113
WMI (Working Memory Index)	117
PSI (Processing Speed Index)	84
FSIQ (Full Scale IQ)	113

Academic Achievement

TOPF (Test of Premorbid Functioning)

	Standard Score
Reading Score	112
Reading/Demographic Predicted FSIQ	109

Nelson-Denny Reading Test - Form H

Reading Rate	%ile	Standard Score
Grade 16, Second Semester	6	77

Comprehension	Raw	
20-Minute Administration	21/25	
	%ile	Standard Score
Grade 16, Second Semester	6	77
	Raw	Time to Completion
32-Minute Extended Administration	34/38	29 min, 23 sec
	%ile	Standard Score
Grade 16, Second Semester	29	91-92

Attention / Executive Functioning

WAIS IV - Digit Span

	Raw		SS
Digit Fwd Long	7	**Digit Span Fwd**	10
Digit Bkw Long	6	**Digit Span Bkw**	13
Digit Seq Long	7	**Digit Span Seq**	11

Symbol Digit Modalities Test

	Raw	Errors	T
Written	45	0	36

Trail Making Tests

	Time	Errors	T
Part A	44	0	28
Part B	104	2 Sequencing	30

WCST 128 (Wisconsin Card Sorting Test)

	Raw	%ile
Perseverative Responses	8	T=51
Nonperseverative Responses	7	T=51
Categories	6	>16
Trials to 1st	16	6-10
Set Failures	0	>16

CPT II (Conner's Continuous Performance Test-II)

	Raw	T
Omissions	11	74
Commissions	2	34
Hit RT (in msec)	680	86
Hit RT Std. Error	13	77
Hit RT Block Change	0.03	60
Hit SE Block Change	-0.02	47
Hit RT ISI Change	0.14	75
Hit SE ISI Change	0.08	56

Stroop

	Raw	T
Word Score	72	24
Color Score	58	31
Color Word Score	38	41
Interference		56

Language

Controlled Oral Word Association Test

	Raw	T
FAS	25	29
Animals	16	31

NAB (Neuropsychological Assessment Battery)

	Raw	T
Naming	26	37

Learning & Memory

CVLT-II (California Verbal Learning Test)

	Raw	Z
Trial 1	7	0
Trial 2	7	-1
Trial 3	8	-1.5
Trial 4	8	-2
Trial 5	8	-2
Trial 1-5 Total	38	T=36
Trial B	2	-2.5
Short Delay Free	7	-1.5
Short Delay Cued	6	-2.5
Long Delay Free	3	-3
Long Delay Cued	5	-2.5
Recognition Hits	16	0.5
False Positives	14	4.5
Total Recognition Discriminability	2	-1.5
Repetitions	2	-0.5
Intrusions	9	1.5
Semantic Clustering	-0.5	-1

WMS-III (Wechsler Memory Scale- Third Edition)

	Raw	Age SS
Logical Memory I - Recall	32	8
Logical Memory II - Recall	16	8
	Raw	**Age %ile**
Logical Memory - Recognition	21	16

Rey Complex Figure Test

	Raw	T
Copy	34	>16%ile
Immediate	17	34
Delayed	17	33
Recognition	19	35
Copy Time (Seconds)	194	>16

Questionnaires

BDI-II (Beck Depression Inventory)

Raw	Range
1	Minimal

AQ (Autism Quotient)

Raw	Interpretation
28	See report

AMAS-C (Adult Manifest Anxiety Scale- College Version)

	Raw	T
Worry/Oversensitivity	1	31
Physiological Anxiety	2	49
Test Anxiety	1	38
Social Concerns/Stress	1	47
Total Anxiety	5	35

Barkley ADHD Scales

	Inattention	Hyperactivity
Childhood	9	4
Current	7	3