

Nonverbal Learning Disabilities (NLD) in Vermont Schools

Nonverbal Learning Disability (NLD) is a term used to describe a specific learning profile. It is characterized by a number of cognitive strengths and challenges that impacts a child's success in the academic and social settings. While this colors all aspects of the student's life, it does not need to limit who he or she can become.

The authors of this paper believe that it is important to understand each learner as an individual since not *all* students with NLD will have *all* attributes of this disability or fit a specific mold. Every student is unique and each journey through the educational system needs to be determined both from sound educational data and the student's own interests, goals and passions.

The goal of this paper is to provide the School Psychologists of the State of Vermont with a guide for identifying, understanding and making remedial suggestions for students with NLD.

Rather than focusing on the limitations of this disability, the authors believe that with a quality comprehensive evaluation, a well-informed team, appropriate approaches, and the input of the student, academic and social success can be reached.

What is NLD?

NLD is a neurodevelopmental disorder first defined by Myklebust (1975) as a social perception disability, and then more extensively researched by Rourke et. al. (1973, 1981, 1985, 1987-1993, 1995-1996, 2000). It typically impacts three main areas of functioning including visual spatial/organizational (the ability to interpret and organize the individual's visual-spatial environment), motoric (the ability to master their physical environment and express themselves in written form), and social (the ability to adapt to new or novel situations, and/or accurately read and respond appropriately to nonverbal signals and cues), and is hypothesized to involve the white matter of the brain (including the right hemisphere and the corpus callosum). Nonverbal learning disorders appear much less frequently than language-based learning disorders. NLD is found in approximated 10% of the learning disabled population (approximately 1% of the normal population) and affects females and males equally. It is also found to be evidenced comorbidly in many other separate disorders (see Appendix A).

What are the Strengths and Challenges of a Student with NLD

Neuropsychologists typically speak in terms of assets and deficits. For the purpose of this paper, we will speak in terms of strengths and challenges. The student with NLD is frequently described as being "smart" by both parents and teachers. In the early grades, many children with NLD display high achievement in subjects that require rote memorization but little abstract or conceptual thought. Their perceived intelligence works for them, but also against them by creating an illusion of competence. As a result, their perceived intelligence is their greatest strength, but also one of their worst enemies. These individuals can be very aware of their limitations and will often buy into their own illusion of competence, setting higher expectations for themselves in all areas of functioning. Both parents and other adults often experience children with NLD as being more competent than they truly are. Society places a high regard on individuals with good verbal skills, one of the strengths of an individual with NLD. However,

this is an overestimation. As a result, many parents and teachers feel that they are being manipulated by this individual when in fact they are not. Parents and teachers frequently ask what behaviors are NLD and what behaviors are typical of normal development. Given that NLD is a syndrome, **not all** of the strengths and/or challenges identified by Rourke et. al. (1989) will be evident in individuals with NLD. In fact, some individuals with NLD display splinter skills or strengths and/or challenges that do not entirely fit the pattern of NLD. For example a student with NLD may show all other strengths and challenges of NLD except for math. Listed below are the strengths and challenges typically found in individuals with NLD by Rourke. This section will also explain how each of these shows itself in the high school environment (also see Appendix B for a chart version).

Strengths

The following are the strengths typically found in students with NLD:

Rote Material

Working with repetitive and unchanging information (e.g., saying the capitals of the states, memorizing multiplication tables, reading a script in a play, saying the Pledge of Allegiance, singing the National Anthem) is a strength for the student with NLD. Students learn that they can rely on routines and their predictability and gain comfort from them.

Auditory Perception

Students with NLD often have a heightened ability to perceive auditory information. This is the ability to correctly receive information aurally.

Auditory Attention

As a result of intact auditory perception, individuals with NLD are more likely to have good auditory attention. This refers to the ability to listen to sounds for an extended period of time without tiring or becoming distracted.

Auditory Memory

When one is able and willing to attend to auditory information, the likelihood of well-rehearsed memory increases – an area of strength for individuals with NLD. Auditory memory involves the ability to recall and compare auditory information previously heard. This can include words in isolation as well as differences in rhythm patterns, sounds and songs.

Verbal Attention

While similar to the above, this is the ability to listen to the spoken word for extended periods of time without tiring or becoming distracted (e.g., listening to lectures, radio talk shows, or books on tape for long periods of time).

Verbal Memory

Students with NLD often display an uncanny ability to recall previously presented verbal information. If this strength is present, they are able to remember word-for-word what was said, including the tone.

Other Verbal Strengths

Other verbal strengths include: phonology, verbal reception, verbal repetition, verbal storage, verbal associations and verbal output.

Simple Motor Skills

While working on activities requiring simple motor skills (e.g., walking, stacking books), these students do not stand out. Activities that involve simple physical movements with little planning, minimal balance, and minimal hand-eye coordination are seen as a strength for individuals with NLD.

Academic Strengths (Decoding, Spelling, Reading)

As a result of many of the above strengths, students with NLD typically display exceptional decoding and encoding skills (i.e., single word reading, spelling skills, and reading).

Challenges

The following are the challenges typically found in students with NLD:

Novel Material

A student's struggle with novel material will reveal itself in his or her desire/need to keep everything as it is in the school and classroom setting. Changes to routine and spontaneity will result in an immediate negative response, usually involving a heightened level of anxiety.

Tactile Perception

Challenges in this area will have a dramatic impact on development throughout a student's school career. This translates into problems involving the ability to hold on to writing instruments with the correct grip and strength without exhausting the hand muscles. While the primary strength of simple motor skills is often found in these students, their tactile perceptual challenges influence their willingness and desire to interact with their environment in a tactile manner (i.e., with their hands). Teachers may see heightened tactile defensiveness and/or heightened tactile sensitivities.

Tactile Attention

Given a history of inaccurate tactile perception, it is understandable that the student with NLD does not pay attention to that which cannot be trusted. Tactile attention is seen in the student's ability to focus on information provided through the skin, primarily as measured through the hands, for an extended period of time without tiring or becoming distracted (e.g., holding a pen, modeling with clay, working with the hands).

Complex Psychomotor Skills

This challenge involves activities that require complex physical movements as well as planning, balance, and/or hand-eye coordination (e.g., riding a bicycle, writing, drawing, dancing, acting out the motions/gestures of a song). Despite their increased verbal abilities, students with NLD struggle to express themselves in written form. In drawing, their visual perception combines with problems of psychomotor expression in rather immature drawings. Handwriting and printing may be slow, laborious, and even unreadable, often to the students themselves.

Complex Graphomotor Coordination

This refers to the ability to express thoughts or ideas in written form, through pictures or words, by using the hands, not a keyboard. This can include the organization of those thoughts or ideas (e.g., organizing paragraphs, writing a story, reading comprehension, performing mechanical arithmetic, doing mathematics, work on science projects).

Visual Perception

This primary challenge involves the ability to receive information correctly through the eyes (e.g., to perceive material on a chalkboard correctly, to perceive a teacher correctly, to perceive anything as it truly appears). Visually, students with NLD cannot always make sense of what they perceive.

Visual Attention

Since students with NLD cannot trust what they perceive, they are reluctant to attend to it. Visual attention involves the ability to focus on information provided to us through our eyes for an extended period of time without tiring or becoming distracted. Visual perceptual difficulties and the resulting confusion is often reflected in poor visual attention.

Visual Memory

As a result of the primary and secondary challenges related to vision (Attention and Memory) found in students with NLD, visual memory is often a significant challenge. Visual memory involves the ability to recall and compare information previously seen.

Exploratory Behavior

All of the primary challenges found in students with NLD (tactile perception, visual perception, complex psychomotor skills and novel material) result in the NLD student's reluctance and/or inability to adequately explore their environment. Exploratory behavior involves the desire and the willingness to investigate the environment around one's self. The resulting lack of exploratory behavior has significant impact on their learning. Most people learn through a combination of rote instruction and their experiences in the environment. By removing their environmental experiences, the student with NLD is left with relying strictly on direct instruction of rote material.

Activity Level

The student with NLD typically displays a heightened reluctance to move around his or her environment. This attitude is quite understandable given all of the above mentioned challenges. This most typically involves participation in extra-curricular activities outside of the usual day-to-day routine (e.g., a hike with friends, a dance class, karate, gymnastics, a horseback ride). A reduced level of physical activity and increased passivity is frequently seen in students with NLD.

Verbal Challenges

Verbal challenges include: oral-motor praxis, prosody, semantics, content, pragmatics, and function. While the speech of a student with NLD appears competent and well developed, further investigation will reveal a lack of understanding of deeper meaning (e.g., idioms,

sarcasm, humor, etc.). This is one of the larger contributors to some of the obvious social challenges. These verbal challenges also involve how individuals speak (e.g., having inflections in your voice as opposed to using a monotone, robotic-like voice) and understanding others when they use unique language (e.g., idioms – “up a creek without a paddle”, verbal humor, morals contained within stories versus a concrete/basic understanding of language).

Time sense

A good sense of time involves estimating time and planning accordingly (e.g., being able to judge the time of day, how long it takes to walk to school). This is usually extremely poor in students with NLD.

Psychosocial and Adaptational Challenges

Of all of the areas of challenge, these are the most crucial to be aware of and to accommodate, especially in the school setting. These challenges hinder daily functioning in all areas, not just academic.

Adaptation to Novel Situations

Adaptation to novel situations involves being able to appropriately react to change and adapt one’s thoughts or behaviors based on changes to the surrounding environment (e.g., putting a coat on when it suddenly gets cold, reacting appropriately to a substitute teacher or surprise quiz). Students with NLD will react in a highly negative and resistant manner to any changes in situations.

Social Competence

The ability to make and keep friends through appropriate social interactions shows social competence. A student with NLD has significant challenges in numerous areas of social competence.

Psychosocial Disturbance

Psychosocial disturbance is best understood as atypical thoughts, feelings and reactions in relation to typical day-to-day stressors (e.g., anxiety, depression, obsessions, compulsions).

Academic Challenges

Students will typically display challenges in:

Reading Comprehension

Reading comprehension involves understanding the meaning of what has been read at a deeper level, not just parroting what was read (e.g., being able to put a story that you read into your own words).

Mechanical Arithmetic

Students with NLD struggle with being able to complete addition, subtraction, division, and multiplication tasks while maintaining adequate columns and rows (e.g., keeping the ones in the one’s column, the tens in the ten’s column and so on).

Of greatest importance when looking at a student’s strengths and challenges, is the fact that it is the interaction between both the strengths and the challenges that creates the difficulties typically seen in the student with a NLD.

SCREENING AND EVALUATION OF STUDENTS WITH NONVERBAL LEARNING DISABILITIES

It should be noted that there is an appropriate way for School Psychologists to diagnose NLD (best practice) versus less desirable and less accurate methods. While compiling this chapter, it became clear that if we are going to best serve the student with NLD, we must provide an accurate, consistent, and reliable diagnosis. The ‘gold standard’ was set out by Rourke et. al. (1989). Many schools, School Psychologists and Special Educators have diagnosed NLD, or a lack of NLD, using criteria based on hearsay, unreliable hand-me-down information, and urban legend. This is where many school districts falter and lose in mediation and due process hearings. Several school districts around the country have set the only criteria to be that a discrepancy between verbal and performance scores of at least ten IQ points must exist on a Wechsler Intelligence Scale for a diagnosis of NLD to be made. Using this method would only be correct approximately 42% of the time. While this method may be accurate in extreme cases, it tends to miss the more frequent subtle cases.

Formal Diagnostic Criteria

When looking at a diagnosis of NLD, a certain profile emerges on neuropsychological and cognitive testing. Individuals with the diagnosis typically exhibit impaired visual spatial functioning, visual working memory, tactile perception, perceptual abilities, fine and gross motor abilities, and higher order reasoning skills, with well preserved language functioning (Rourke, 1989). There are eight characteristics that Rourke has developed when assessing individuals with NLD and they are as follows (the numbers in parentheses represent the percent of individuals with NLD who are identified with that particular test):

- 1) Performance on the Target Test falls one standard deviation below the mean (90);
- 2) No or very minimal simple tactile imperceptions and suppressions versus very poor finger agnosia, finger dysgraphesthesia, and astereognosis composite (90);
- 3) Two of Wechsler Vocabulary, Similarities, and Information subtests are the highest of the Verbal scales (76);
- 4) Two of Wechsler Block Design, Object Assembly, and Coding subtests are the lowest of the Performance scales (76);
- 5) Academic achievement in Reading is at least eight points greater than Arithmetic (72);
- 6) Tactual Performance Test Right, Left, and Both hand times become progressively worse vis-à-vis norms (66);
- 7) Normal to superior grip strength versus mildly to moderately impaired Grooved Pegboard (59);
- 8) Wechsler Verbal Index Score > Performance Index Score at least ten points (41)

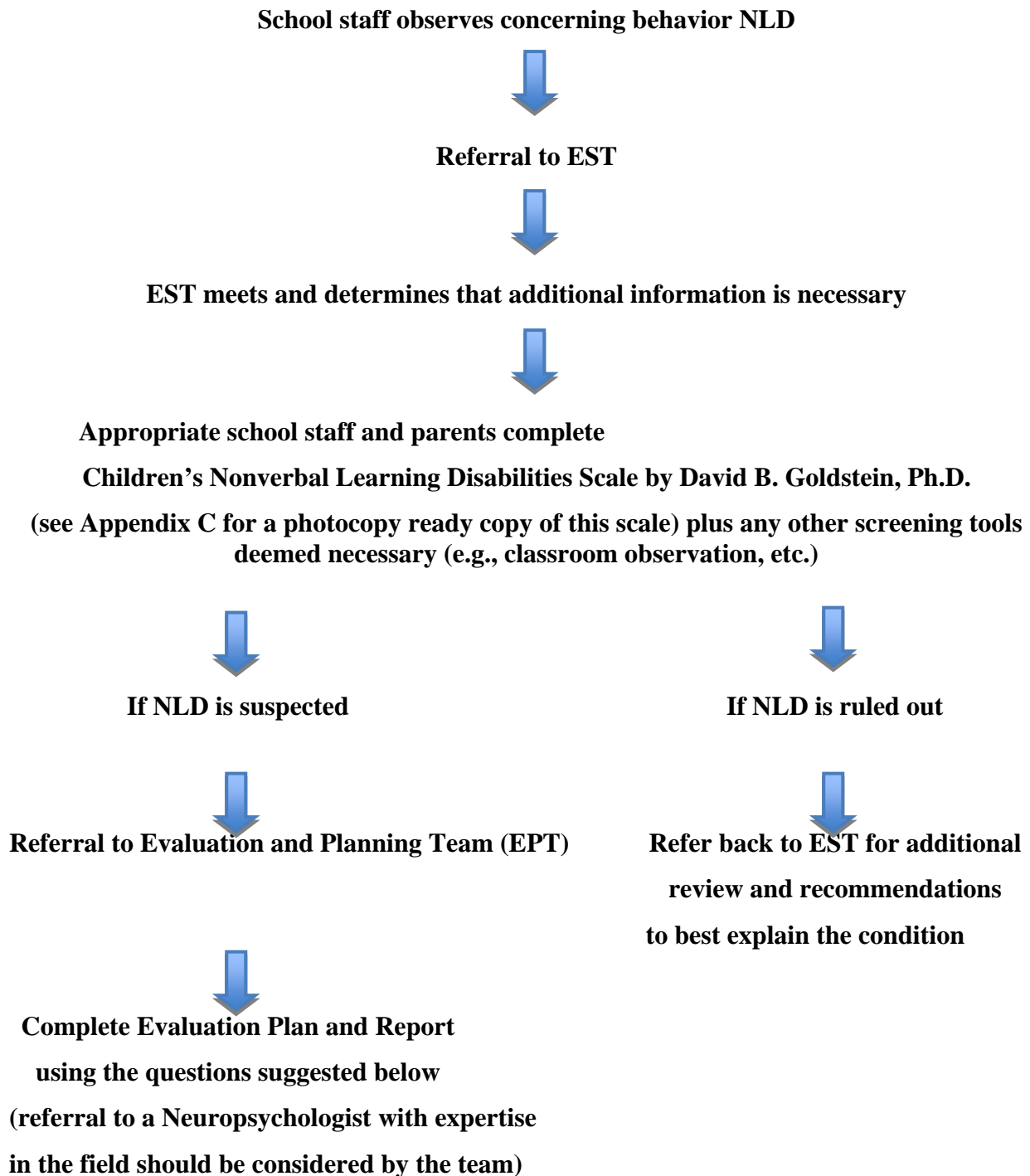
The diagnostic criteria related to the eight characteristics are as follows:

If the first 5 features are present:	Definite NLD
If 7 or 8 of these 8 features are present:	Definite NLD
If 5 or 6 of these 8 features are present:	Probable NLD

If 3 or 4 of these 8 features are present: Questionable NLD
If 1 or 2 of these 8 features are present: Low Probability of NLD

What should be noted with the above criteria is that all of the tests listed above are given as part of a battery of tests (i.e., the Halstead-Reitan Neuropsychological Battery – also known as the HRB, 1993).

Below is a flowchart with a suggested protocol for the diagnosing of NLD in the school:



Special Education and Neuropsychological Findings

When considering obtaining a neuropsychological evaluation for a student that you suspect has NLD, it is important to interview the Neuropsychologist as to their experience in the field, the instruments they typically use and are comfortable with, and their understanding of NLD. While there are multiple methods of conducting a neuropsychological evaluation, it is important to obtain one that will answer your diagnostic questions and provide objective data that will support the recommendations. Again, the HRB is the recommended battery. One of the greatest struggles that schools repeatedly experience is the disconnect between what the neuropsychologist finds to be useful and puts in their reports and what the school can use and needs to appropriately support the student with NLD while at the same time meeting their legal mandate to find the student eligible for special education under Individuals with Disabilities Education Act (IDEA, 2004), accommodations under Section 504 of the American with Disabilities Act (ADA, 1990), or other regional supports that are sanctioned by the state government or the Local Educational Agency (LEA). Both schools and parents need to be willing to have a frank discussion regarding their separate needs. Below are some suggested questions that are best asked of the Neuropsychologist when contemplating a neuropsychological evaluation as well as a suggested evaluation battery. This list is not exhaustive and can be added to:

- Does this student have a Nonverbal Learning Disability according to the diagnostic criteria put forward by Dr. Byron Rourke?
- What are this student's cognitive abilities?
- What are this student's strengths?
- What are this student's challenges?
- What are this student's current life circumstances?
- What is the nature/extent of exceptional life circumstances on this student's learning and school functioning?
- What are this student's levels of adaptive behavioral functioning?
- What are this student's behavioral, emotional, and social characteristics?
- Is there a discrepancy greater than 1.5 standard deviations below the expected achievement level for this student's ability level that is not the result of a visual, hearing, or motor disability; learning impairment; emotional disturbance; or environmental, cultural, or economic disadvantage?

The following is a list of suggested evaluation instruments for the neuropsychological evaluation that could answer the above questions:

- Classroom/School Observation
- Structured Student Interview
- School Cumulative Record Folder review
- Developmental History
- Parent Interview
- Teacher Interview
- An Interview with pertinent health professionals (physicians, psychologists, social workers, etc.)

(one of the following according to age)

Wechsler Intelligence Scale for Children - IV

Wechsler Adult Intelligence Scale-III

Wechsler Preschool and Primary Scales of Intelligence – III
Rey-Osterrieth Complex Figure Test and/or the Beery-Buktenica Developmental Test of
Visual-Motor Integration

A measure of academic achievement such as the Wechsler Individual Achievement Test (most recent edition), as well as at least one separate test of written expression such as the Test of Written Language (most recent edition).

The Halstead Reitan Neuropsychological Battery that could include:

Children's Category Test - Level 1/2

Sentence Memory/Repetition Test

Revised Knox Cube Test

Seashore Rhythm Test

Speech-Sounds Perception Test

Verbal Fluency Test

Auditory Closure Test

Progressive Figures Test

Trail Making Test

Grooved Pegboard Test

Finger Oscillation (Tapping) Test

Name Writing Test

Lateral Preference Test

Sensory-Perceptual Examination

Aphasia Screening Examination

Tactual Performance Test

Dynamic Grip Strength Test

Target Test

Wide Range Assessment of Memory and Learning

A measure of self-esteem

A measure of anxiety

A measure of depression

A measure of personality (no projective techniques)

And lastly, a measure of adaptive behavioral functioning

In addition, the team should make sure to include question regarding the student's pragmatic and semantic language abilities for the Speech/Language Pathologist to address, and questions regarding the student's fine and gross motor abilities and sensory issues for the Occupational Therapist to address.

Adverse Effect and Nonverbal Learning Disabilities

Typically, NLD is found within the basic skill concepts of reading, written expression and math computation. They are also occasionally linked to language-based skills such as receptive or expressive language. Whichever basic skill is used to determine the existence of an adverse effect, three measures of the six possible must meet the lowest 15th percent requirement in order to be eligible for special education services.

Individually Administered Nationally Normed Achievement Test

This measure, given its one-to-one requirement, is given under what would be considered optimal conditions for most students with a non-verbal learning disability. As a result, many students obtain scaled scores or standard scores that do not fall in the lowest 15th percent of the student's age or grade level. It would be important and appropriate in such cases to consider the bands of confidence allowable under evaluation rules to determine where a student's skills might more appropriately lie within a less than optimal environment. A statement as to the reason for using the bands of confidence should be included in the Evaluation Planning Team Report if used in determining a possible adverse effect using this measurement.

Grades

This measure needs to reflect not only the grades obtained by the student with a non-verbal learning disability in comparison to their peers, but it should also reflect how those grades were obtained. If, for example, specific accommodations and/or modification were necessary for the student to obtain passing grades in the class, unique to less than 85% of the class, then a statement in the Evaluation Planning Team Report should be documented to indicate that the removal of such accommodations/modifications, in the opinion of a professional, would result in the student's grades being in the lowest 15th percent of the grade or class. (It is not required for the LEA to remove the accommodations/modifications for the student to prove or provide evidence to this professional opinion.)

Normed Group Administered Achievement Tests

Often this assessment reflects what the student does in a group situation, but it may also be subject to accommodations/modifications that render the scores as a description of assessment scores under, again, optimal conditions for the student. In such cases, the score obtained should be coupled with documentation that indicates how the use of accommodations or modifications were either unique to 85% of the population being evaluated or how a score above the 15th percent rank was due, in part or in whole, to the implementation of these accommodations/modifications.

Curriculum-based Measures

Often found within benchmark assessments (chapter or unit tests, mid-term or final exams) or continuous progress monitoring outcomes, the measurement as to whether this identifies an adverse effect may depend on the student's performance (again, dependent on the use of

accommodations/modifications) in these areas in comparison to their age or grade level. The adverse effect could also be proven by the fact that the interventions attempted were not necessary with at least 85% of the rest of the population.

Criterion-referenced or Group –administered Criterion-referenced Assessments

Test results (Brigance, NECAP, DRA, DIBELS) that show the student to be in the lowest 15th percent of their grade level or the student is unable to take the test without accommodations and score above the 15th percent of their grade level.

Other examples: (i.e. Student Work, Language Samples, Portfolios)

In addressing the issue of adverse effect in these other measures, it is appropriate to look both at the quality of the work presented by the student as well as the quantity of work. If, for example, the average student is expected to turn in 20 assignments for the semester and the NLD student only turns in 12, where does that lower number of assignments completed rank him among his or her peers? Is such a modification covered in their IEP that may not, therefore, be reflected in the student's grades? The quality of work should be reviewed for comparison to the grade level as well as to the need for any accommodation/modification that results in a standard being set that is different to that of 85% of her or his peers.

DIFFERENTIAL DIAGNOSTIC: NLD, AS, PDD, ED

Owing to their various immaturities, students with learning disabilities often take longer to make the shift to understanding another's perspective. Their poor comprehension of social rules naturally exacerbates their isolation and withdrawal. Studies have shown that these children can be less accurate than their peers at analyzing a social problem; foreseeing the possible consequences of various solutions; interpreting nonverbal cues of affection, gratitude, and anger; asking forgiveness; interpreting facial expressions, gestures, or posture; and describing another's feelings. Even interpreting humor in cartoons can present problems. These difficulties are often referred to as NLD.

Deficits in NLD:

- Interpersonal relationships
- Visual spatial organization
- Visual memory
- Balance, coordination, planning
- Executive functioning
- Tactile/sensory
- Nonverbal problem solving
- Adaptation to novelty
- Organization and planning skills
- Concept formation

- Social judgment
- Math, reading comprehension, writing

The Pervasive Developmental Disorders (PDD) involve major disruptions in normal development, such as, reciprocal social responsiveness, communication, and complex behavioral repertoire. Asperger's Disorder includes the impairment in social responsiveness and constricted repertoire of goal-directed activity also seen in Autistic Disorder, but is characterized by typical to advanced language development.

NLD	AD	PDD
Mild delay may be present followed by rapid development	No language delay/Mild delay may be present followed by rapid development	Speech develops, then plateaus
Poor pragmatics and prosody	Poor pragmatics and prosody	
Significant fine and visual-motor problems; dysgraphia	Significant fine and visual-motor problems; dysgraphia	Coordination develops normally
Perseverating behavior; restrictive areas of interest; focus on details; poor social judgment	Perseverating behavior; restrictive areas of interest; focus on details; poor social judgment	Restrictive, repetitive, stereotypical behavior

Emotional Disturbance (ED)

ED is an educational diagnosis, made by School Psychologists that is characterized by an inability to learn which cannot be explained by intellectual, sensory, or health factors; inability to build or maintain satisfactory interpersonal relationships with peers and teachers; displays inappropriate types of behavior or feelings under normal circumstances; pervasive mood of unhappiness, depression and anxiety; physical symptoms associated with personal or school problems. ED can be identified by the occurrence of one of the conditions above for a long period of time and to a marked degree.

NLD falls under the OHI designation but does not preclude the team from identifying the student with NLD as ED.

Typical Emotional Development in Students with NLD: A Typical Developmental History

While they appear verbally bright, individuals with NLD have inherent difficulty with higher order reasoning and problem solving abilities, visual spatial and organizational abilities, and understanding nonverbal language of social interactions.

Students with NLD have typically moved through several diagnostic categories as they grew older (See Chart). Initially, very young children with NLD may be identified as potentially hearing impaired because of their lack of eye contact or seeming lack of reaction to auditory information. They are frequently screened for their hearing and seen by hearing specialists.

Once that diagnosis is set aside, and prior to the development of language, the issue of Autism is raised to explain their idiosyncratic behaviors. This diagnosis is usually substituted by well meaning diagnosticians for Pervasive Developmental Disorder – Not otherwise Specified (PDD-NOS) once the child has starting talking and does not stop. This diagnosis may be fine tuned once they sample his language – especially in light of the special interests and nonstop discussion about topics that typically make them anxious. Children with NLD typically over-talk about what is making them nervous or about a subject that offers them a sense of mastery in an attempt at self-soothing. This rarely works since talking about what makes them anxious just increases their anxiety, and talking about what they know, while offering mild temporary relief, does not target the anxiety producing issue. These behaviors tend to lead to diagnosis of Obsessive-Compulsive Disorder (OCD) since many times these children may also develop rituals to accompany their over-talk. What must be kept in mind is that these behaviors do not represent any intrapsychic conflict (as seen in the television show Monk or for those slightly older - Felix Unger from the Odd Couple) but feeble attempts to self-sooth and reduce anxiety. As one adolescent student with NLD put it, “I worry about if I’m worrying about the right things...I don’t know what to worry about!” When accommodations are appropriately put in place, OCD symptoms become less apparent, and the need for these behaviors diminishes.

Students with NLD also usually begin to display anxiety in the early elementary grades. As students enter middle school, these problems intensify and generalize to multiple areas of their life. Many students begin to withdraw from both school and family, choosing to spend as much time as possible in their bedrooms because they find comfort in that environment. If they have a telephone, television, a computer, and internet connection available, many students isolate themselves in a self-preservation type of behavior. Whenever they are forced to emerge, their anxiety rises and they report feeling overwhelmed and out of control. These feelings of hopelessness and helplessness often develop into depression and a greater potential for suicide.

As one parent put it, “I am the chief interpreter of the world for my child.” Parents need to recognize that they will often be told that they are overprotective; however, school personnel need to recognize that the parents have been witness to an extended history of subtle and not so subtle abuse of their child by others, especially in the school setting. As a result of this close relationship, children with NLD will have a very difficult time separating from their parents as is expected in adolescence. One of two things typically happens, either the emergence of the adolescent occurs with great trepidation on the part of both the parent and child (often accompanied by much anger and derision), or separation does not happen at all, leaving the child tied to the parents often until their mid twenties to early thirties.

A study (Rourke, 1988) was conducted over several years investigating the relationship between neurotypical individuals, individuals with a language-based learning disability (e.g., dyslexia), and individuals with NLD. What Rourke found was that NLD exhibits more clinical and more internalized forms of psychopathology than individuals with language-based learning disabilities and neurotypical individuals. They also found that, while individuals with a language-based learning disability may have emotional problems during school, they tend to resolve them after leaving school. They find school or employment where they can excel and not be reminded that they have a disability. Unfortunately, individuals with NLD continue to struggle throughout their lifetime with emotional issues including low self-esteem, anxiety, and depression. In fact,

approximately 41% of students diagnosed with NLD are mislabeled by schools as having a severe emotional disability and placed in a classroom for students who do have a severe emotional disability. When this sort of placement happens, one of two things typically happens to students with NLD. They either begin to identify with the aggressive acting out students in an attempt to align themselves with the aggressor, or they become the target of bullying by the emotionally disturbed student. If the former happens, students with NLD will awkwardly attempt to emulate the aggressor in their classroom, often becoming mascot, henchmen, or yes-man for the bully, or is taken advantage of to perform the illegal acts that the bully would normally perform themselves. If the latter happens (bullying), the student with NLD will again be the target of peers that will further reinforce their perception of the world as unsafe and drive them back to their bedroom where it will be even more difficult in the future to convince them to put themselves out in public and try again.

Individuals with NLD “misperceive, mis-emit, or fail to emit subtle nonverbal information in exchanges with others” (Rourke, 1989). Translated, this means that students who have NLD not only don’t understand or pick up on social cues (subtle and not so subtle) that are in their environment, but also do not emit appropriate social cues to others. This is probably one of the most powerful arguments for the need for social skills development throughout the student’s school career, not just in elementary school. Social skill development is not intrusive, and no one has ever died from or suffered from social skills that are too well developed. School systems will typically give lip service to their desire to raise good citizens. Being a good citizen demands good social skills. While most people do not use advanced calculus or trigonometry on a daily basis, all people must use social skills on a continuous basis just to survive in society. While a school can provide a reasonable level of social skills development, those skills must be practiced in a variety of settings to attempt to address the problem of generalization of learned skills. Individuals with NLD can learn most skills or tools to get along in society; however, which tool and when to use it is the greatest struggle that they encounter.

As a result of their need/reliance on auditory input, students with NLD do not need to make eye contact or appear to pay attention. As one student with NLD stated, “Why do I need to look at you when I am getting all the information I need through my ears. I don’t need to look at you to hear you.” However, in many school settings, by fourth through sixth grades, this type of behavior is often misinterpreted, mislabeled, and test results are misinterpreted as Attention-Deficit Hyperactivity Disorder – Inattentive Type (ADHD-IT). Following this diagnosis, students with NLD are typically placed on a trial of medication to help them pay attention. This tends to be ineffective at the very least and, at the most, dangerous as a good portion of students have violent aversive reactions to the medications. By the time these students enter middle school, they have the diagnosis of Anxiety and/or Depression. While behaviorally, these diagnoses correctly describe the student’s experience, the emotions remain primarily exogenous to the student. Throughout life, if the environment is recognized as the genesis of the anxiety and altered to be less anxiety producing, a goodly portion of the anxiety and depression dissipates. However, if the student is exposed to an anxiety-producing environment for an extended period of time (different for every individual), a base level of anxiety will become endogenous.

Parents need to create a support system that remains in place over a long period of time. The school, the parents, and the mental health staff need to be collaborating on a regular basis so that a plan is in place when the student with NLD hits the wall emotionally. Much like a three-legged table, if one of these is missing, the supports will fall apart. While the parents may know the child the best, they do not have the educational expertise or the understanding of disorders and interventions that mental health can bring to bear.

A balanced approach must be taken in the relationship between the parents and education officials. While the school cannot be everything to everyone, nor should it be, it does need to step up to the plate with regard to a fully rounded education. Some parents approach the school community with the attitude to “fix my child”; however, a more practical approach would be say, “How are you going to help my son learn what he needs to know to be a happy and productive citizen?” Typically, the school does not have a birth through eighty years old perspective of the parents. They tend to have a Kindergarten through Grade 12 perspective. Whose perspective is correct? Each of them is correct from their perspective. What needs to happen is that they have to develop a new set of goals together as a team. An effective method to do this is by utilizing the McGill Action Planning System (MAPS - refer to Chapter 13) process.

Certainly, the worst-case scenario can be found in the mid to late teenage student that has received little support and who, as a result, is now contemplating suicide. Historically, students with NLD who have gotten to the point of making a decision about killing themselves need immediate intervention. These students have usually done research within the community or on the internet as to how to most efficiently kill oneself.

Therapeutically, students need to have had prior contact with a therapist who understands NLD so that they feel comfortable with the therapist when they are truly in need. The therapist will spend some time developing a relationship with the student who can then access the therapist on an as needed basis. This ‘as needed’ basis can be defined by either the student or the parents. It is also important that the therapist receives weekly feedback from both the school and the parents since adolescents by nature are not forthcoming.

On repeated occasions in life, if the student with NLD is assessed using projective measures (e.g., the Thematic Apperception Test, Rorschach, etc.) and/or objective personality measures (e.g., MMPI-A) results may indicate a growing psychotic disorder. The seasoned clinician will look beyond these results and recognize that the disordered thought is a reflection of the NLD and does not portend a psychotic disorder. Again, the clinician must keep in mind that the level of psychosocial disturbance will increase as the lack of support decreases and the complexity of the social situation increases.

Appendix A

Manifestations in Neurological Disease, Disorder & Dysfunction

Level 1 (virtually all of these disorders have NLD present)

Callosal Agenesis (uncomplicated)
Asperger Syndrome
Velocardiofacial Syndrome
Williams Syndrome
de Lange Syndrome
Hydrocephalus (early; shunted right)
Turner Syndrome
Significant damage or dysfunction of the Right Cerebral Hemisphere

Level 2 (a high percentage of these disorders have NLD present)

Soto's Syndrome
Prophylactic treatment for ALL (long-term survivors) and treatment of children with other forms of cancer affecting the brain
Metachromatic Leukodystrophy (early in disease progression)
Congenital Hypothyroidism
Fetal Alcohol Spectrum Disorder (high functioning)

Fairly clear evidence of NLD present in these disorders

Multiple Sclerosis (early to middle stages)
Traumatic Brain Injury (diffuse white matter perturbations)
Toxicant-Induced Encephalopathy (affecting white matter) and teratology
Children with HIV and White Matter Disease
Fragile X (high functioning)
Triple X syndrome
Leukodystrophies other than Metachromatic (early in disease)
Haemophilus Influenzae Meningitis
Early-Treated Phenylketonuria (PKU)
Intraventricular Hemorrhage (early)
Children with cardiac disease treated with ECMO
Children of <750 gm (1.65 lbs.) birth weight
Congenital Adrenal Hyperplasia
Insulin Dependent Diabetes Mellitus (very early onset)
Fahr's Syndrome

Ambiguous

Neurofibromatosis (early to middle stages of disease progression)
Noonan Syndrome

Difficult to classify

Cerebral Palsies of perinatal origin

Similar, but basically different neuropsychological patterns

Tourette Syndrome
Autism (high functioning)

Appendix B

The summary of the neuropsychological strengths and challenges *typically* found in individuals with NLD and how each strength and challenge makes itself apparent in the school environment.

Function	Strength or Challenge	Examples
Rote Material	Strength	<ul style="list-style-type: none"> • saying the alphabet • counting numbers • saying the “Pledge” • memorizing multiplication tables • memorizing a script
Auditory Perception	Strength	<ul style="list-style-type: none"> • hearing sounds and words correctly
Auditory Attention	Strength	<ul style="list-style-type: none"> • listening to music • listening to lectures • listening to white noise • watching television
Auditory Memory	Strength	<ul style="list-style-type: none"> • remembering what was said • parroting another person
Verbal Attention	Strength	<ul style="list-style-type: none"> • listening to lectures • listening to talk radio • listening to books on tape
Verbal Memory	Strength	<ul style="list-style-type: none"> • remember what someone said • remembering a conversation
Phonology, Verbal Reception, Verbal Repetition, Verbal Storage, Verbal Associations, Verbal Output	Strength	<ul style="list-style-type: none"> • talking • interacting verbally with others • having conversations (one-sided)
Verbatim Memory	Strength	<ul style="list-style-type: none"> • parroting exact conversations • memorizing lines from a movie • memorizing lists of facts
Simple Motor Skills	Strength	<ul style="list-style-type: none"> • walking • clapping hands • stuffing envelopes • stacking blocks
Spelling	Strength	<ul style="list-style-type: none"> • encoding • spelling single words correctly
Word Decoding	Strength	<ul style="list-style-type: none"> • reading single words in isolation
Novel Material	Challenge	<ul style="list-style-type: none"> • field trips • spontaneity

Appendix C

Children’s Nonverbal Learning Disabilities Scale

by David B. Goldstein, Ph.D.

Please answer all of the following questions.

NAME OF CHILD: _____

DATE OF BIRTH: _____ AGE: _____ SEX _____

GRADE: _____ SCHOOL: _____

HANDEDNESS: RIGHT _____ LEFT _____ BOTH _____

This Questionnaire has been completed by:

Mother _____ Father _____ Teacher _____

Other (Please describe your relationship) _____

1. Motor Skills

a. My child/student has problems with balance (e.g. never learned to ride a bike).

Never/Rarely _____ Sometimes _____ Often/Always _____ I don’t know _____

b. My child/student displays impaired fine motor skills (e.g. significant difficulties learning to tie shoes).

Never/Rarely _____ Sometimes _____ Often/Always _____ I don’t know _____

c. My child/student has problems writing or extremely slow writing.

Never/Rarely _____ Sometimes _____ Often/Always _____ I don’t know _____

d. My child/student seems unusually clumsy.

Never/Rarely _____ Sometimes _____ Often/Always _____ I don’t know _____

2. Visual-Spatial Skills

a. My child/student has difficulty remembering and organizing visual or spatial information (e.g. has difficulty lining up numbers to do a math problem or lining up words neatly on a page).

Never/Rarely_____ Sometimes_____ Often/Always_____ I don't know_____

b. My child/student appears disoriented, lost, or confused when entering a new situation.

Never/Rarely_____ Sometimes_____ Often/Always_____ I don't know_____

c. My child/student is slow to become familiar with new physical locations (e.g. continues to appear lost or disoriented after repeated exposures to the same location).

Never/Rarely_____ Sometimes_____ Often/Always_____ I don't know_____

d. My child/student has difficulty remembering the faces of people he or she has met.

Never/Rarely_____ Sometimes_____ Often/Always_____ I don't know_____

e. My child/student has an auditory memory like a tape recorder.

Never/Rarely_____ Sometimes_____ Often/Always_____ I don't know_____

f. My child/student loses his or her way and needs help finding his or her way around.

Never/Rarely_____ Sometimes_____ Often/Always_____ I don't know_____

g. My child/student has unusually strong verbal skills (e.g. an impressive vocabulary or early speech).

Never/Rarely_____ Sometimes_____ Often/Always_____ I don't know_____

3. Interpersonal Skills

a. My child/student often does not get the humor in a joke because he or she interprets everything so literally.

Never/Rarely_____ Sometimes_____ Often/Always_____ I don't know_____

b. When interacting with others my child/student has difficulty reading the other person's non-verbal cues, such as tone of voice or facial expression.

Never/Rarely_____ Sometimes_____ Often/Always_____ I don't know_____

c. My child/student interprets what I say very literally (for example, if I tell my child/student 'to pick themselves up by his or her bootstraps, they appear confused).

Never/Rarely_____ Sometimes_____ Often/Always_____ I don't know_____

d. My child/student has difficulty transferring what he or she learns in one social situation to similar social situations. For e.g. my child/student appears confused when confronted with slight changes in a frequently encountered social situation.

Never/Rarely_____ Sometimes_____ Often/Always_____ I don't know_____

Guidelines for Scoring the Children's Nonverbal Learning Disabilities Scale

The syndrome of NLD includes a number of specific symptoms. Rourke (1995) has organized these into three primary areas: neuropsychological deficits, academic deficits, and social emotional/adaptational deficits. Neuropsychological deficits include difficulties with tactile and visual perception, psychomotor coordination, tactile and visual attention, nonverbal memory, reasoning, executive functions, and specific aspects of speech and language. Deficits in mathematical reasoning, math calculations, reading comprehension, specific aspects of written language, and handwriting are primary academic concerns. Deficits in social expertise include problems with social cognition and perception as well as difficulties in social interaction.

Some of the symptoms identified with Nonverbal Learning Disabilities are similar to those described for other disorders. Individuals with right hemisphere dysfunction, Asperger's syndrome, and sensory-motor deficiencies each possess a number of characteristics that overlap with those of a Nonverbal Learning Disability. An evaluation by a Neuropsychologist can often assist in differential diagnosis.

This is a checklist of characteristics that may be indicative of a Nonverbal Learning Disability. A referral for a more detailed evaluation by a pediatric Neuropsychologist to rule in or rule out a NLD requires that the parent report symptoms in all three spheres noted; deficiencies in motor-skills, visual-spatial skills, and interpersonal skills.

A referral to a Neuropsychologist or for a more in-depth evaluation of a NLD should be considered if the teacher/parent reports deficits "Sometimes" or "Often" on over half the items examining motor skills (at least 3 of the 4 items), visual-spatial skills (at least 4 of the 7 items), and interpersonal skills (at least 3 or the 4 items).

References

Rourke, B.P. "Neuropsychological Assessment of Children with Learning Disabilities: Measurement Issues." In G. Reid Lyons (ed.), *Frames of Reference for the Assessment of Learning Disabilities: New Views on Measurement Issues*. Baltimore, Md., Paul H. Brooks, Publisher, 1994.

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The Children's Nonverbal Learning Disabilities Scale from the Developmental Screening and Referral Inventory by David B. Goldstein, Ph.D., 1999.

Appendix D

Behavioral Manifestation of NLD in School Age Students

Interpersonal

- Attentional concerns
- Impulsivity
- Sensitivity to loud and noisy spaces.
- Withdrawal or isolation. These children may display a decrease in exploratory behaviors as children and/or avoid extracurricular activities.
- Anxiety concerns. These children may get anxious very quickly and display their anxiety physically (picking at fingers).
- Difficulty adapting to novel situations. The child may react in a negative manner to changes in routine.
- Difficulty with transitions.
- These students want to interact with others, but have a difficult time with it.
- Does not understand nonverbal cues in communication.
- Will follow directions to a “T” and are often described as “little police men.”
- Trouble with learning about fairness, friendships and sharing.
- These students talk excessively.
- Difficulty recognizing when food is on their face. The student may chew with their mouth open and be messy eaters.
- These children are often naïve and do not understand maliciousness. They may get into trouble because they did something someone told them was OK. You may find that these students get into trouble at school because they did something someone said would be funny. They do this because they want to be friends.
- These children are often compliant.
- These children do not display perseverative interests.
- These children may talk in their sleep.

Academic

- Strong to exceptional vocabulary and verbal expression.
- Displays strengths in spelling (of single words), decoding, encoding, math calculation and fluency.
- Weaknesses present in reading comprehension, applied problems/math reasoning skills and abstract applications.
- They present with a good auditory memory. However, when asked to take notes/write while listening they struggle.
- Difficulty generalizing information and with novel material.
- Difficulty with inductive and deductive reasoning.
- Due to perceptual challenges, the student may struggle with using borrowing and regrouping skills
- The student displays excellent rote memory abilities (parroting exact conversations, memorizing lines from a movie, memorizing lists of facts, saying the alphabet, counting numbers, saying the Pledge, etc.).

-Concrete and literal thinkers.

Motoric

- Student struggles with balance and may fall out of seat. S/he may appear to not know how it happened.
- Riding a bike after age 9 or not at all.
- Commonly appears awkward.
- Cutting with scissors and tying shoe laces are extremely difficult at young ages.
- Difficulty with tactile perception. This can show up in pencil grip and strength (may break pencils), and a heightened sensitivity to touching and/or handling things.
- Simple motor skills are a strength. This includes walking, clapping hands, stacking blocks, etc.

Visual-Spatial

- Difficulty with spatial relationships and perceptions. Frequently bumps into people and objects.
- Difficulty telling time and judging and estimating time.
- Difficulty with money sense.
- These students may display a limited sense of direction, and at times may get lost because they do not have an “internal map.”
- Sustaining visual attention is a difficulty for them (watching a movie, watching a demonstration, watching a sporting event, etc.).
- Visual perception is an area of need. These children will struggle with seeing a chalkboard accurately, following gestures, following hand signals, etc.

Appendix E

Typical Psychological Report Recommendations for Students with NLD

Learning Style

XXX is clearly a “verbal learner”, primarily, and is likely to retain and assimilate verbal auditory information much better than non-verbal or visual information. She/He needs to learn things through verbal instruction, preferably in rote manner, and the context for the information needs to be clearly explained. When trying to learn new tasks, she/he will do best when she/he can verbally talk himself through the processes in step-by-step fashion.

Proficient verbal skills often mask outstanding deficiencies observed primarily in novel or otherwise socially demanding situations, thus decreasing the perception of the very salient needs for supportive intervention for individuals with XXX’s cognitive profile. Thus, active participation on the part of XXX’s school team and parents in the development of an appropriate educational plan, including social interventions, is critical.

Organization

She/He is likely have a very difficult time organizing both his/her thoughts and things in his/her physical environment; she/he may appear messy or lose things unless she/he has a fairly concrete system for organizing and keeping track. She/He is likely to perceive time differently than most people and will not be able to handle complex instructions, multi-step directions or tasks that involve doing several things at once. She/He will do better working in a step-by step manner that she/he can clearly explain, out loud if necessary. She/He is likely to struggle with social contexts, may lack judgment, and be easily influenced if there is an immediate social reward for acting imprudently.

She/He is likely to have great difficulty developing solutions to complex or novel problems, and instead will tend to fall back on previously learned habits, rules, and routines. This tendency may become exaggerated to the point of extreme rigidity in social, academic, practical and vocational efforts. Maturationally, in some respects XXX will present and process at a higher level than expected and may appear very comfortable conversing with adults about a range of topics that interest him/her. In other respects, such as in issues dealing with visual spatial tasks (i.e. organizing his/her home environment, loading the dishwasher, remembering appointments and being able to solve complex problems or follow multi-step directions), XXX will appear to function much like a typical child of a much younger age.

Instructions for all activities, tasks, etc. should be presented in a concrete, simple, step-by-step manner. Avoid giving him/her multiple tasks or complex directions at the same time. Encourage him/her to verbalize his/her perception of the similarities between old learning and established routines with which she/he is comfortable and new situations. Avoid giving him/her instructions and/or presenting rules that will later have to be modified. Never assume that XXX understands the rationale or “the why” of a particular concept, task, rule or procedure but rather present these rationales in verbal, rote fashion. Encourage him/her to make sequential lists to remember necessary information. Break down all tasks into concrete component steps. Use age-

appropriate vocabulary (given his/her strong verbal comprehension skills) but expect that XXX's judgment and abstract comprehension will be more similar to someone younger and less mature. Avoid the excessive use of non-literal, idiomatic or sarcastic communication, but do not dispense with humor altogether.

Emotional/Behavioral

Reducing XXX's anxiety about school will be a repeated need that should be reflected in each and every support plan.

Emotionally, XXX presents an interesting and somewhat complex picture. She/He does not report experiencing much emotional distress, but the distress she/he does experience tends to manifest in stubbornness and somatic discomfort that appears to have roots in the difficulties she/he experiences due to his/her neuropsychological impairment and learning differences. She/He appears to have some difficulty accepting authority and will become highly resistant to directives and structure imposed by authority she/he does not respect. In contrast, when she/he accepts and respects a person/source as authority, she/he works hard to conform and to please.

XXX is also encouraged to work with a professional knowledgeable in the field of NLD as needed, to understand his/her cognitive profile so that she/he may continue to tap into his/her strengths and develop tools to compensate for areas of challenge. Eventually, involvement in group therapy with adolescents/adults with similar needs may be beneficial.

As noted, XXX may benefit from periodic consultation with a professional knowledgeable in the field of NLD, particularly as she/he enters into adulthood and the vocational and organizational challenges that she/he is likely to face become more salient. Although XXX has historically been resistant to much therapeutic intervention, offering counseling when she/he faces periods of increased stress may be helpful.

Although XXX is not reporting acute levels of anxiety, depression, or other symptoms, she/he may benefit from pharmacological intervention to reduce the anxiety that she/he does experience, including the high levels of psychomotor restlessness that contributes to some sleep disturbance. A consultation with a pediatric psychiatrist with experience treating adolescents with pervasive developmental disorders is recommended. It is recommended that XXX, his/her parents, teachers, and provider have a concrete means of tracking the medication efficacy, such as the use of a symptom and side effects checklist.

Education and practice around problem-solving can occur through role-play, therapeutic games and through discussion of everyday situations as they occur (i.e. What's going on here?, Why?, How do you feel now?, How do you think others are feeling now?, What might happen if you...?, What might happen if you don't...?) This may happen in individual counseling, social skills or related support groups, in home, community or classroom settings.

Academics

Academically, XXX is clearly far more proficient at reading than with math computation, although his/her neurocognitive deficits are likely to cause him/her to become fatigued and read more slowly than typical. XXX struggles considerably with written expression. However, results from this evaluation indicates that XXX does not struggle with spelling. These difficulties are again attributable to the neuropsychological deficits/impairment she/he exhibits that create severe challenges in organization, planning, visual spatial processing and neuromotor and neurosensory functioning.

Given the features of NLD, XXX will benefit from as much predictability and consistency as a school environment can offer. Providing a predictable and safe environment with a consistent daily routine, minimizing transitions, and giving needed verbal cues to XXX before transitions will be helpful. Give XXX's parents a schedule of activities so they can "rehearse" (preview and prepare) for the day's events.

Teach XXX to underline and not highlight his/her work. All school staff should be made aware of this need. Make everything XXX needs to learn rote and verbal. Make anything that is new and novel - 'old hat' for XXX through practice, cueing, and repeated reminders of what is going to happen next. A redundant schedule will be most comfortable for XXX. Novelty and surprise should be avoided as much as possible.

XXX cannot compute number facts automatically and still relies on methods such as estimation and substitution of process (i.e. repeated addition for multiplication). Tools or strategies such as the use of Touch Points, calculators and charts should be considered so that difficulties with number facts and calculations do not further delay his/her learning. It will be important to relate math concepts to social and meaningful applications.

XXX's strengths in verbal reasoning should be highlighted. Verbally rich presentations of information and discussion of how concepts apply to his/her life will be beneficial. It will be especially important to explain any unfamiliar or complex visual materials presented.

Skills, concepts, appropriate procedures, cognitive strategies, and so on, may be most effectively taught in an explicit and rote fashion using a parts-to-whole verbal instruction approach. Break complex tasks down into individual parts, with a verbal explanation or outline/structure to refer to. Before presentation of new information, XXX may benefit from discussion familiarizing him/herself with key concepts and words. In addition, review and reinforcement of prior information should be offered as well as making relationships between old and new information explicit. Teaching XXX verbal strategies to use when learning new material is recommended. When tasks are not presented in an explicit format, XXX should be taught to ask questions about the purpose of the assignment, what she/he already knows about it, and what information she/he is looking for. When helping XXX plan for big projects or assignments, give him/her a model of the finished product that she/he can reference.

As noted, support with the writing process is also recommended. XXX may find it quite frustrating that his/her ideas are flowing faster than she/he is able to get them down on paper

given his/her slow processing speed and organizational difficulties, which could lead to anxiety and ultimately manifest in psychiatric symptoms. Provide XXX with a sample of a completed piece (book report, essay, research paper) for reference so she/he can organize the stages of the writing process. Scaffolding situations to help him/her organize thoughts; create, edit, and revise text; theme development; and grammar usage is recommended. XXX will find a word processing or speech to text software program beneficial when creating written work given organizational and processing speed difficulties. Therefore, all written work should be completed through either of the above means. Offering extended time during testing situations (classroom and standardized) is recommended given his/her difficulties with visual motor integration.

In any school setting, XXX would benefit from preferential seating, near the front of the classroom, to help reduce excessively interfering stimuli. Group assignments should also be planned accordingly, pairing XXX with positive role models. Developing clear roles and expectations for group members is also encouraged so that XXX is aware of his/her specific function in the group.

Academically, XXX will require a high degree of individualized attention and instruction due to his/her learning profile, and active participation in his/her learning is strongly recommended. Specifically, XXX's relative challenges with mathematics, spelling, and written expression should continue to be considered when developing XXX's academic curriculum.

Ideally, an educational program with appropriate therapeutic and academic intervention woven throughout XXX's day is recommended. A smaller class size, which would allow the teachers and staff to deliver more one-to-one attention to individual students' needs, would be appropriate. In XXX's case, she/he appears to require significant assistance with all aspects of writing and mathematics. His current educational placement seems highly appropriate, but these supports should continue after XXX completes high school.

All school staff that interact with XXX need to be educated with regard to NLD and appropriate ways to interact with students with these learning profiles. The use of an IEP-at-a-Glance or other summary document is an effective and efficient way to spread information about XXX's academic needs.

In any typical school setting, the elimination of homework should be a goal in XXX's IEP. The stress that this creates is not worth the cost to XXX. Accommodations can be made so that an appropriate amount of practice/mastery work can be demonstrated.

The use of Books on Tape is strongly encouraged. An application for this program can be obtained online or from this Consultant. The use of the Kurzweil System (<http://www.kurzweiledu.com>) should also be investigated.

Teachers should approach XXX as if she/he were an ESL (English as a Second Language) child since he/she has some difficulty with the pragmatics of the language and prosody of speech.

Motor

Continued therapeutic intervention with an Occupational Therapist is strongly recommended for XXX.

Memory

XXX's deficits in visual working memory and the ordering of complex visual information suggest that she/he will require continuous or at least prolonged access to stimuli in order to retain and work well with information that she/he sees. Thus, she/he will probably have great difficulty committing a visual model to memory but may be able to work effectively when allowed continuous exposure to the model, providing it is not overly complex. When performing tasks that require considerable visual spatial ordering (i.e. loading a dishwasher, arranging items in unfamiliar space, etc.) she/he will likely struggle, primarily due to his/her weak long-term visual memory that will "make each effort as if it is new".

It is important to be very aware of XXX's neurocognitive strengths and deficits when helping XXX learn new skills, adhere to family rules and social/cultural norms, and completing daily tasks. XXX processes information (particularly visual information) somewhat slowly and his/her working memory is fairly weak. His/Her ability to think abstractly is limited and his/her judgment is likely to be rather weak.

Social

It is highly recommended that XXX continue to be involved in extracurricular activities in areas of interest to help promote age-appropriate social relations and positive self-esteem. Working closely with XXX's school team will be important for his/her well-being.

Consultation and evaluation with a Speech-Language Pathologist or other professional with knowledge of pragmatics to improve pragmatic language and nonverbal communication is highly recommended. A small social skills group with children with similar needs is also recommended to help improve social communication. XXX would benefit from improving his/her use of appropriate nonverbal behavior (e.g., the use of gaze for social interaction, monitoring and patterning of inflection of voice); verbal decoding of nonverbal behaviors of others; and processing of visual information simultaneously with auditory information (in order to foster integration of competing stimuli and to facilitate the creation of the appropriate social context of the interaction). Social awareness, perspective-taking skills, and correct interpretation of ambiguous communications (e.g., nonliteral language) may also be cultivated and practiced. Ideally, this group should include several neuro-typical students for appropriate modeling and feedback of functional social and communication skills.

As noted, it is highly recommended that XXX be involved in extracurricular activities in areas of interest to help promote age-appropriate social relations and positive self esteem.

Involvement in a drama club/society can be very beneficial in helping XXX to develop social scripts that she/he can use at a later time.

Future Planning/Transition

It is hopeful that XXX will be invested in his/her future educational program and work with his/her parents and school team to help develop a program that will best meet his/her learning and social needs.

When thinking about XXX's transition to a postsecondary environment, his/her parents are encouraged to research programs/institutions that have strong academic support center, small class size and student population, and experience in educating individuals with NLD. Appropriate therapeutic and organizational support should also continue as XXX transitions to a college setting, which will include the development of a 504 Plan prior to college enrollment. It will be extremely helpful to have highly specific educational goals and supports in place as XXX works to adjust to a new educational environment.

When considering an eventual transition to independent living, it is important to consider that XXX will likely require a considerable amount of time to develop the necessary skills to live independently, and his/her parents are encouraged to begin working on all these skills immediately. Such skills include: learning to drive/navigate in an urban or suburban setting; managing a checkbook and budgeting finances; shopping for groceries and other needed items in an organized fashion; managing home living skills such as laundry, cooking, dish washing, etc.; completing a job application and becoming oriented to the interview process, and; other "activities of daily living". Due to XXX current deficits in these areas, she/he may benefit from working with a life coach to help him/her develop these skills. Given his/her historical resistance, this individual ideally should be a male/female somewhat older than XXX that shares some of the same interests.

Some portion of XXX's program should be based on functional skills, and not based primarily on academics. She/He would benefit from structured programs involving motor and sensory activity (e.g., adapted art, instrumental music, or physical education), vocational skills (e.g., cooking, or filing), functional community exposure, and self-care. It will be beneficial to continue to reinforce social and peer interaction during the school day.

The academic, social, and organizational supports should occur on a regular basis and be carried out with close communication with XXX's parents to ensure that she/he is following through with tasks at home and to promote generalization of skills in various environments.

Appendix F - Informational Handouts

A Short Summary of NLD for Teachers and Parents

1. Nonverbal Learning Disability (NLD) definition.
 - a. Neurodevelopmental disorder housed in the right hemisphere and is believed to involve the white matter and corpus callosum.
 - b. Impacts three areas of the functioning including visual spatial/organizational (the ability to interpret and organize the individual's visual-spatial environment, motoric (the ability to master the physical environment and express themselves in written form), and social (the ability to adapt to new or novel situations, and/or accurately read and respond appropriately to nonverbal signals and cues).
 - c. NLD appears in 10% of the learning disabled population (approximately 1% of the normal population) and affects females and males equally.

2. Strengths and challenges of a student with NLD.
 - a. Frequently referred to as smart.
 - b. Early grades display high achievements in subjects requiring memorization but little abstract or conceptual thought.
 - c. Perceived intelligence works both for and against them creating an illusion of competence.
 - d. Because of their verbalization they are often seen as more competent than they truly are. Due to this weakness—they often appear to be manipulative (when in fact they are not manipulating). Byron Rourke (world famous NLD researcher) notes not all strengths and challenges will be present. Example, math is generally a weakness, but not all students will have the math weakness!
 - e. STRENGTHS:
 1. Rote material *saying the alphabet, counting numbers*
 2. Auditory Perception *hearing sounds and words correctly*
 3. Auditory Attention *listening to music, lectures, white noise*
 4. Auditory Memory *remembering what was said, parroting another person*
 5. Verbal Attention *listening to lectures without tiring, books on tape, radio talk shows*
 6. Verbal Memory *remembering what someone said*
 7. Phonology *learning reading*
 8. Verbal Reception *talking with others, talking, one sided conversations*
 9. Verbal Repetition *same as above*
 10. Verbal Storage *same as above*
 11. Verbal Association *memorizing lines from a movie*
 12. Verbal Output *being able to talk*
 13. Simple Motor Skills *walking, clapping hands, stacking blocks*
 14. Graphomotor *strength later in life—writing, printing, drawing, copying*
 15. Academic Strengths:
 - a. Decoding *reading words in isolation*

- b. Spelling *encoding, spelling single words correctly*
- c. Reading *reading only in isolation, not context*

- f. CHALLENGES:
 - 1. Novel Material *field trips, spontaneity, schedule changes, new school, anything new*
 - 2. Tactile Perception *identifying shapes by touch, identifying objects by touch*
 - 3. Tactile Attention *For an extended period of time—playing with toys, clay, tactile center*
 - 4. Complex Psychomotor Skills *riding a bicycle, dancing, gymnastics*
 - 5. Visual Perception *seeing a chalkboard, following gestures, following hand signals*
 - 6. Visual Attention *watching a movie, demonstration, sporting event*
 - 7. Visual Memory *recognizing faces of people, facial expressions, finding your way around school*
 - 8. Exploratory Behavior *taking risks, trying new foods, traveling, going for a walk*
 - 9. Activity Level *extracurricular activities, hiking, sports, horseback riding, dance lessons*
 - 10. Verbal challenges *inflection in voice, idioms, verbal humor, deeper meaning of language*
 - 11. Time Sense *judging and estimating time*
 - 12. Psychosocial and Adaptational Challenges
 - a. Adaptations in novel situation *reacting to change, disliking spontaneity, struggling to change routine*
 - b. Social competence *making and keeping friends, appropriate social interactions*
 - c. Psychosocial disturbance *atypical thoughts, feelings, reactions, to typical day to day stressors (anxiety, depression, obsessions, compulsions—related to environmental issues*
 - 13. Academic Challenges
 - a. Reading comprehension; *putting a story in your own words, understanding themes, understanding morals in stories*
 - b. Mechanical Arithmetic *adding in columns, carrying and borrowing*
3. Things that are important in developing relationships and teaching the NLD student.
- a. Relationship, relationship, relationship.
 - b. Understand the NLD diagnosis.
 - c. Talk, talk, talk. (with IEP team, parents, Special Educator etc.)
 - d. Respect modifications and accommodations. Understand the difference.
 - e. Structure the environment.
 - f. Reinforce assignment understanding.
 - g. Set up a plan for work submission (email???)
 - h. Establish behavioral expectations.

- i. Refine homework communication.
- j. Two sets of books.
- k. Keep visual material at a minimum (expose to maps, but minimal drawing of maps).
- l. Use a model to define the end project. Give them an example of a previous project.
- m. Use alternative ways to present a visual representation of an idea. Computer generated photographs or recreations of artwork help. Power Point presentations with teacher assistance.
- n. Be aware of the “fatigue factor”. Sleep patterns vary; glucose use is exceptionally high for NLD students, sensory bombardment all day.
- o. Tap into “previous knowledge” of a subject and move forward from there.
- p. If your school has KURZWEIL, use it! Order textbooks on digital format for the NLD student.
- q. Stay in tune with emotions of your NLD student. They can hide anxiety, frustration, and emotions.
- r. Let’s talk about homework.
- s. Modalities of assessing subject knowledge must vary.

Stress, Anxiety, Panic and Phobias: Secondary to NLD

Sue Thompson, MA, CET

It is important to correctly identify and provide appropriate interventions for the school-aged child with NLD because this child is particularly inclined toward developing secondary internalizing disorders such as stress, anxiety and panic, as well as debilitating phobias. Children's Hospital Oakland has made the study of NLD and related conditions a specialty in their departments of psychiatry, neurology, and neuropsychology. Their research to date has revealed that children with NLD tend to suffer in the emotional realm because these children are not proficient at interpreting interpersonal interactions -- they lack insight into the feelings and perceptions of others that the rest of us glean intuitively.

Dr. Herbert Schreier, Chief of Psychiatry at Children's Hospital Oakland, states that having NLD "does not preclude having other conditions such as panic disorder, or anxiety and depression, secondary to NLD and school organizational issues." According to the National Institute of Mental Health in Bethesda, Md., anxiety disorders are the most common of neurobiological disorders. In the United States alone, twenty-three million people suffer from anxiety disorders. It is not known how many of these individuals are school-aged children because, child psychiatrists report, anxiety disorders in children are often overlooked or misdiagnosed.

Included in the spectrum of anxiety disorders are: panic disorder, generalized anxiety disorder, social phobia, specific phobia, obsessive-compulsive disorder and post-traumatic stress disorder. It may be difficult for parents and teachers to distinguish between normal stress in a child and conditions of anxiety and panic. Learning to recognize the difference can help us to better serve those in our care. The students we work with, even at a very young age, can become seriously afflicted by anxiety disorders.

It's not hard to imagine how a child who doesn't see the "whole picture," who is constantly confused by his surroundings and his interactions with others, and who is unable to anticipate what will happen next, could experience a disproportionate amount of stress in his everyday experiences, such as attending school or shopping at a mall. Add to this the perfectionistic and obsessive/compulsive tendencies of many students with NLD, and the immense pressure this child faces should be obvious.

It shouldn't surprise anyone that there is a connection between the excessive stress a student with NLD encounters and her inclination toward anxiety disorders. Without appropriate intervention, the cumulative effect of ongoing stress can advance to an unmanageable state of anxiety for a child already predisposed to internalizing disorders (as Dr. Byron Rourke of the University of Windsor, and his associates, have found individuals with NLD to be).

It is important to note that, while the stress of coping with NLD may be the trigger for an anxiety disorder, and while excessive stress may make a child with NLD more susceptible to an anxiety disorder, such a disorder is a biological illness, in and of itself, and will require concurrent treatment, along with any interventions already in place to accommodate this child's NLD.

A child with NLD experiences constant confusion and unfamiliarity with his surroundings and circumstances. Without appropriate intervention, he will eventually succumb to the cumulative effects of the persistent stress he encounters in his everyday environment. The student will then become more vulnerable to the affects of even minor changes in his life, because of the continual stress which has built up within him. Add to this the trauma of being in a situation at school where NLD is not well understood or serviced, and all of these factors together may combine to trigger panic attacks.

In the case of the child with NLD, everyday occurrences produce an abundance of stress. Because this child has to "think" about everything he does, even an "average" day can be overly demanding and unmanageable. Getting through a day at school takes an extraordinary amount of determination and perseverance. The stresses of this student's life may gradually overwhelm him, both physically and emotionally.

Panic disorder often coexists with other neurocognitive and neurobiological disorders. Although there seems to be a predisposition to panic disorder in those with NLD, children with other types of learning disabilities may also develop PD. In addition, those with PD may also have a heart condition called "mitral valve prolapse." This condition involves a defect in the mitral valve, which separates the two chambers of the heart. People with mitral valve prolapse are thought to be at a higher risk of developing panic disorder.

The more stress a student with NLD is under, the more likely he is to experience panic attacks and anticipatory anxiety (both of which can lead to additional problems of insomnia and agoraphobia). Sleep patterns may be upset by panic-related anxiety. Sleep is also disturbed when panic attacks occur at night. This experience can be so traumatic that some sufferers reach a state where they are afraid to go to sleep and subsequently suffer from sleep-deprivation and exhaustion.

"Insight-oriented" psychodynamic therapy ("talk therapy") or other forms of psychotherapy which focus on the client's past have proven to be counterproductive as a model of intervention for individuals with NLD, and also for those suffering from PD. Psychodynamic approaches to therapy do not help people overcome panic disorder or agoraphobia.

Therapy should focus on practical, directive-type therapy, concentrating on the difficulties and successes the person is experiencing at the present time, and on directly teaching skills which will help this individual to cope more effectively in the future. The therapist should assume a positive coaching role.

At a conference held at the National Institutes of Mental Health (NIH) under the sponsorship of the National Institute of Mental Health (NIMH) and the Office of Medical Applications of Research, conferees concluded that "any treatment which fails to produce an effect within six to eight weeks should be reassessed."

It should come as no surprise to anyone that there is a connection between stress and panic. With this in mind, it is imperative that parents and teachers do everything possible to lessen the stress a student with NLD experiences in his daily activities.

Significant life events involving a real or perceived threat can contribute to the development of panic disorder. A student with NLD who feels threatened by his peers or teachers at school is at risk.

A high-school senior with NLD and PD was served with a subpoena at school (after being betrayed and deceived by school officials) and suffered a major panic attack on the spot. He had to leave the school grounds in order to recover. This type of ignorant behavior on the part of school officials is unconscionable and cannot be tolerated.

CAMS aimed at previewing, preparing and supporting the student will help decrease the amount of stress she encounters. As a parent or teacher, you will not be able to eliminate all sources of stress, so aim to defuse as many as you can. Forget archaic notions of "responsibility." It is important to recognize that the goal for this student is to eliminate stressors, which may mean reducing expectations of accountability and responsibility. It is important for the adults in this child's life to understand his disorder and to make appropriate adjustments in their behavior and communication, so they can help the student cope better with the stress he encounters. In addition to careful planning and monitoring, the following ten pointers can help, at home and at school:

Establish a regular exercise routine: Stress is a reaction to change. It is an internal physical reaction triggered by external factors (i.e. pressures at home or school). Exercise can help release pent-up stress. The child with NLD probably does not exercise as much or as often as his peer group, owing to balance and coordination problems. Discover a noncompetitive form of exercise he can participate in regularly (i.e. walking the dog or swimming laps).

Learn to Relax: A student with NLD probably has no idea what it feels like to be totally relaxed. She lives in a constant state of tension: wondering what will happen next, trying to remain balanced in her chair, worrying about being teased or ridiculed, trying to keep herself organized, etc. This child may need to be directly taught (through verbal instruction) the difference between being tense and being relaxed.

Establish a regular sleep schedule: Lack of quality sleep makes the body extremely vulnerable to stress. A child with NLD often has difficulty getting to sleep at night and/or staying asleep. Transitioning from a wakeful state to a sleeping state presents the same difficulties as other transitions in this child's life. If at all possible, establish a schedule where this child goes to bed at the same time every night -- including weekends and vacations -- and gets up at the same time each morning.

Laughter is good medicine: Laughter helps release stress. All too often the child with NLD is described as "the serious little professor" type. Because this child tends to be very literal, he may miss out on a lot of the humor in everyday situations. Point out amusing incidents and silly situations to him (verbally). You may not approve of your child spending time on school nights watching shows like "The Simpsons" or "Friends" every week, but if they're making him laugh, you should consider it therapeutic!

Schedule Time Out for Fun: Organization of time and place often pose a major problem for students with NLD during high school and college years (and beyond). Since this student is unable to visualize, she will have difficulty setting realistic goals and priorities. Such a student can get so bogged down with school work, she "forgets" to pursue other avenues of her life. It is important to help her seek a healthy balance between academic and social pursuits. Find an activity -- preferably something that can be done with others (playing a musical instrument, singing in a choir, attending sports events) -- which gives this child pleasure. Help her schedule time to participate in this activity regularly, without worrying about other things which may not get done.

Improve Dietary Choices: Dietary changes can actually help a child cope better with the stress he encounters. Eating a healthy diet (high in fiber, low in fat, with lots of fruits and vegetables) will make him stronger and more resilient! Junk food should be kept to a minimum. Also, consider eliminating caffeine (Mountain Dew, Coke, chocolate) from this child's diet. Caffeine is a stimulant and can actually cause sensitivity to stress. Caffeine consumption is known to cause panic attacks in some people.

Create a Support Network: Assign one case manager at school who will oversee this child's progress and assure that all of the school staff are implementing the necessary accommodations and modifications. In-service training and orientation for all school staff, promoting patience, tolerance and acceptance, is a vital part of the overall plan for success. Everyone at school must be familiar with, and supportive of, this child's academic and social needs.

Change Self-Critical Thought Patterns: The child with NLD tends to put herself down a lot, to think of herself as worthless or ineffectual, to have trouble being assertive, to dislike herself or her life, and to generally criticize herself. These types of self-critical thought patterns can make it difficult to handle stress. Cognitive therapy can teach a child to reverse some of these thought patterns. Parents and teachers must encourage more positive thought patterns. Find something positive in every experience.

Learn Time Management and Organization Techniques: Stress accumulates when a child feels rushed and overwhelmed. Remember: He processes information slowly. Be sure you allow enough time for him to do the things you ask of him. This will help him better cope with the stress he encounters. Because this student lacks an internal structure for organization, it is important to provide him with an external structure for organization. Stress results from change. Strive to create predictable cycles in his life.

Curb Perfectionistic Tendencies: Probably because this child hones in on infinitesimal details, while failing to see the "whole picture," perfectionism is common among students with NLD. Because perfection in all endeavors of one's life is absolutely impossible, trying to be perfect can cause incredible anxiety for this child. Two techniques for decreasing perfectionistic tendencies are: 1) continually point out to this child the difference between "doing your best" and "being perfect," and 2) praise this child for every incremental accomplishment, everyday of the year, no matter how small it may be. If she is only able to progress partway toward a particular goal, consider it an achievement rather than a failure.

<http://www.nldontheweb.org/nldadvancedreading/stressanxietypanic.html>

Executive Functioning Information Handout

There has been no agreed upon definition for Executive Functioning. However, most agree that it is a neurological subject often associated with the prefrontal lobes of the cerebral cortex of the brain, which leads to challenges with attention, cognitive flexibility, self-regulation, goal setting and information processing. Research has led to a list of skill areas that appear to be impacted by Executive Functioning deficits. Following is a list of said challenges and their definitions:

Inhibit: Involves inhibitory control (i.e., the ability to inhibit, resist, or act on an impulse) and the ability to stop one's own behavior at the appropriate time. Such children may display high levels of physical activity, inappropriate physical responses to others, a tendency to interrupt and disrupt group activities and a general failure to "look before leaping."

Shift: The ability to move freely from one situation, activity or aspect of a problem to another as the circumstances demand. Key aspects of shifting include the ability to make transitions, problem-solve flexibility, switch or alternate attention and change focus from one mindset or topic to another.

Emotional Control: A child's ability to modulate emotional responses. Poor emotional control can be expressed as emotional lability or emotional explosiveness. Children with difficulties in this domain may have overblown emotional reactions to seemingly minor events.

Initiate: Relates to beginning a task or activity, as well as independently generating ideas, responses or problem-solving strategies. Poor initiation typically does not reflect noncompliance or disinterest in a specific task. Children with initiation problems typically want to succeed at a task, but they cannot get started.

Working Memory: The capacity to hold information in the mind for the purpose of completing a task. Working memory is essential to carry out multi-step activities, complete mental arithmetic or follow complex instructions.

Plan/Organize: The child's ability to manage current and future-oriented task demands. The plan component relates to the ability to anticipate future events, set goals and develop appropriate steps ahead of time to carry out a task or activity. The organize component relates to the ability to bring order to information and to appreciate the main ideas or key concepts when learning or communicating information.

Organization of Materials: Orderliness of work, play and storage spaces (e.g., such as desks, lockers, backpacks and bedrooms). This assesses the manner in which children order or organize their world and belongings.

Monitor: Work-checking habits (i.e., whether a child assesses his/her own performance during or shortly after finishing a task to ensure appropriate attainment of a goal). This scale also evaluates a personal monitoring function (i.e., whether a child keeps track of the effect his/her behavior has on others).

Accommodations and Interventions for Executive Functioning Challenges

Problems of executive functioning occur in children for a variety of reasons. Please note that these problems are not intentional on the part of the student or due to laziness. They are due to deficits in certain skills which have a biological underpinning. Students with executive functioning challenges will benefit from adaptations in the classroom environment as well as education to develop better executive functioning skills.

Following you will find a breakdown of each area of challenge and lists of possible accommodations, recommendations and interventions that can help the child succeed at home and school.

General Recommendation Outline

- Keep it real
- Repetition, repetition, repetition.....
- Build habits and routines. Keep in mind it takes 30 days for an individual without a deficit to build a habit, but it takes individuals with deficits 90 days.
- Developmental progression from external to internal
- Try to remember to be proactive instead of reactive
- Remember to “pick your battles”

Steps to successfully teach a skill:

- Provide the skill that is lacking
- Verbalize and model the skill that is lacking
- Verbalize and have student do the skill
- Prompt the student to self-prompt, than prompt him/her to perform the skill
- Prompt the student to self-prompt and do the skill
- Have the student do the skill and prompt when needed
- Gradually fade prompting
- Occasionally check to see that student is maintaining
- Fade checking

General Accommodations

(Accommodations are environmental changes to compensate for the student’s area(s) of need)

- Make tasks shorter
- Make steps more explicit
- Make the task close ended
- Build in variety and/or choice
- Provide scoring rubrics

Accommodations and Interventions by Area

(Interventions are strategies designed to improve the student's skills)

Sustaining Attention Accommodations

- Write start and stop times on assignments
- Use an incentive system (works best to make rewards as immediate as possible, use a wide array of rewards and remember that novelty can make things more exciting thus making maintaining focus more likely)
- Break tasks up and give breaks
- Do difficult tasks when most alert
- Make sure tasks are at an appropriate level
- Use the Premack Principal (non-preferred activity before a preferred activity to increase motivation)

Sustaining Attention Interventions

- Model, assist, prompt then monitor breaking assignments into tasks and developing a work plan.
- Practice focusing for a short periods of time then gradually increase the time as challenge.

Shifting Attention Accommodations

- Visual calendars
- Increase supervision during transitions
- Anchor changes with known situations (i.e. "Remember last week when (insert situation) happened, well today (insert new situation)")
- Provide preparation and warnings prior to changes in schedule or activity. Provide verbal structuring to aide in shifting mindset.
- Prompts for stopping and shifting (i.e. "Now we are going to do something different. English is over. Math is starting. Put away....Get out....")

Shifting Attention Interventions

- Practice switching from one activity to another
- Play games that require changing strategies (UNO)

Inhibiting Impulses Accommodations

- Provide lots of physical activity.
- Do not** withdraw recess! Instead have the student engage in a neutral activity instead of a free choice recess. This is because the student needs the movement.
- Provide redirection
- Provide a chair cushion, T-stool or other object the student can direct his/her physical energy to.
- Use of weighted vest

- Provide cues of what to do *instead of* telling them what *not* to do.
- Use proximity
- Find ways to provide cueing
- Increase supervision and external controls (restrict access to settings and/or situations)

Inhibiting Impulses Interventions

- Identify impulse to work on and a competing skill
- Explain to the student what you are working on and how
- Have the child practice the skill in a contrived situation
- Cue the student just prior to situations
- Reinforce the student immediately for using the skill even if it did not totally work
- Ignore (when possible) disinhibited behavior (negative attention is just as reinforcing as positive attention!!!)
- Gradually fade cueing and reinforcement

Initiating Accommodations

- Provide prompts to begin
- Work with the child to complete the first portion of task then fade involvement
- Structure routines (e.g. homework at the same time and in the same place)
- Provide options or choices (this may not work for students with anxiety as it may increase their anxiety)
- Use Premack Principal

Initiating Interventions

- Teach self-instruction/self-talk (e.g. “The teacher told me what to do and now it’s time to start.”)
- Work with the student to develop independent cueing system/self-monitoring system. (peer, alarm watch, visual cues, post-its, etc.)
- Use of incentives
- Monitor amount of time from giving instructions to beginning the task. Then encourage the child to beat his/her own time.

Working Memory Accommodations

- Avoid multi-step directions (especially those presented orally)
- Reduce demands
- Expect to repeat directions
- Provide prompts for each step of an activity
- Provide templates for step-by-step procedures
- Provide written and verbal outlines for new information or priorities. (“This is really important”)
- Provide word lists or other prompts for material needed to complete an assignment.
- Provide skeletons of notes, or a copy of a peer’s or teacher’s notes.

- Recognition tests over recall tests.
- Storage devices (work banks, agendas/calendars, notebooks, recorders, palm pilots, etc.)
- Cueing devices
- Natural cues in environment

Working Memory Interventions

- Digit span practice
- Teach use of concrete reminders
- Provide written cues then over time move to the child writing cues and you double check
- Teach memory techniques such as mnemonics, chunking, visualization, repeating information and using rhythms.

Emotional Control Accommodations

- Teach vocabulary for expressing emotions
- Avoid making melt-downs worse (i.e. avoid blocking the exit (when possible), stay out of personal space, avoid power struggles and reasoning, etc.)
- Provide a **quiet** space for the child to calm down (do not talk with the child until s/he is in a calm and quiet state, or you may escalate the behaviors)
- Anticipate, avoid or prepare for situations likely to be difficult
- Offer choices
- Give breaks when tension is rising

Emotional Control Interventions

- Teach emotional vocabulary
- Teach self-monitoring skills
- Teach relaxation skills, distraction skills and anger management skills
- Practice positive self-statements
- Practice skills; do not just talk about them
- Therapy

Planning and Organizing Accommodations

- Have an adult provide a plan or schedule for student to follow
- Use scoring rubrics for assignments
- Break long-term or long assignments into clearly defined subtasks
- Create an assignment template
- Provide separate grades or points for each step of a project
- Break larger tasks into smaller steps
- Have the student break down tasks into smaller steps (i.e. ask, "What's next?")
- Have the student practice identifying "key concepts"
- Have the student use a planner/organizer and help them complete it.

Planning Interventions

- Teach planning strategy that can transfer across situations
 - Meichenbaum's Metacognitive Behavior Management
 - Goal, Plan, Do, Review
- Use preferred activities to model skills
- Have the student be a coach for another student on a task they enjoy
- Follow student's lead for what works for him/her
- Walk the student through the planning process many times with different tasks. You do the planning and talk aloud.
- Provide specific prompts for the child to do the planning
- Provide general prompts
- Have the student verbalize what they need to do as they plan
- Child plans independently and you check their plan.

Organization of Materials Interventions

- Develop rituals or routines for organization and cue and reinforce their use
- Use simple organizational schemes
- Have a second set of texts at home.
- Have assignments and materials available online.
- Model strategies with gradually decreasing cueing

Self-Monitoring (AKA: Meta-Cognition)

- Model by talking out loud about your monitoring of your own or student's behavior
- Have the student practice evaluating their performance step by step.

Time Management Accommodations

(Please note that time management is not the same as telling time)

- Provide a schedule and prompts for each step.
- Extend time limits. If a time limit is given provide prompts (oral and visual) for how much time is left.
- Use cueing devices like clocks, bells or alarms.

Time Management Interventions

- Practice estimating how long something will take and then actually time it and discuss accuracy.
- Develop temporal reference points (i.e. length of a T.V show, CD, song, etc.)
- Develop schedules and routines
- Teach concepts of "work-time" and "non-work time"

**Please keep in mind that the development of any of these skills takes a long time and consistent effort!!!

The following is a list of games and activities that may help in skill development:

Initiation and Inhibition

- Red light/green light
- Simon Says

Shifting

- UNO
- Wiz Kidz
- Follow the Leader

Working Memory

- Memory
- I'm going to London
- Wiz Kidz

Planning

- Checkers and Chess

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