

Non-verbal Learning Disorders (NLD)



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November 2007.

Edit of 8 May 2011

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Front page illustration by Jeanne de Gooyer

1. Case Study: Child

A mother tells about her child:

Joseph was very restless as a baby. He cried a lot and he was not sleeping well. He was very extreme in behavior. He had varied moods. He didn't develop like other children of his age. He tried to handle a pencil but he didn't draw anything. He had no interest in solving puzzles. I thought that he didn't like them, but later I discovered that it was too difficult for him. At school he had learning problems. He was a touchy sort of person. He had problems with his motor-skills. My husband and I decided, in concert with the school, to let him stay in the class for an extra year. The problems did not decrease. We thought as parents that maybe ADHD was the problem, but it was not. The school had the feeling that he had problems with language, but the speech therapist rejected that option. After an IQ test (score 86) he went to a school for children with learning problems. I couldn't believe that my son had scored 86, and that he was a child with a mental handicap. My opinion was that he was a very smart boy. When I read an article about NLD, I immediately recognized my son's behavior. A neuro-psychologist who is specialized in NLD told me I was right. It is wonderful to be able to attach a name to the problems. The teachers at school are also satisfied because they now know how to deal with his problems.

Derived from a Case Study: in an article by Alette van Doggenaar, published in [NRC Handelsblad](#) Saturday April 9 2005.

2. Characteristics NLD

- No autisme

- Auditive type

They pick up information by hearing

They have an auditory memory

People have to give them information verbally

They explore their environment by asking many questions

They are born storytellers

- Visual-spatial Problems

They might not see, understand, or recognize non-verbal behavior of others

They might not recognize and focus on faces, and facial expressions, at the same time as other activities

Some people do not correctly interpret and act on visual and environmental information, such as body language or social interaction

They *seem* to have concentration problems, but these are really other limitations such as sensory or information overload

They have spatial problems with sports, such as ball tracking, player tracking, game tactics, and board games

It may be difficult for them to find the way to frequently visited sites, because they can lose their geographical orientation or visual recognition

They might not be able to actively explore their environment by observation, and moving about in their environment.

They might fail to explore their environment at all

They might not use their tactile skills to explore the world

Problems with concentration when they should observe social situations

When they look in a picture book, it is difficult to keep the pictures in mind

They may have difficulty placing pictures related to a teacher's storytelling in the right sequence.

They may have problems with left and right spatial orientation, for example in adults, *cooking knobs and gas matches at the same time*

They might have problems with other spatial and temporal concepts like behind, after, between, over ...

Children may find it difficult to draw or create figures with correct representation of normal components, even with an example in front of them; and they may stop even trying to do this, as a consequence

- Memory

The *visual* memory is weaker than the *auditory* memory

They have a good auditory and *verbal* memory

- **Verbally strong**

Their strong verbal ability causes unwarranted assumptions of being advanced in other areas, which they do not understand.

They use their verbal strength to compensate for their limitations; for example 'to walk the talk', to investigate *personally*)

People (teachers, employees) overrate them and that is a reason they ask too much from them

There is sometimes slow development of their native language

They might have an enormous vocabulary

They communicate using a lot of words,

They babble on one-side, seeking contact, not quite knowing how to achieve contact.

They may miss a lot of what other people are telling them; taking things too literally, rather than 'reading between the lines' using all available information.

When they get too much visual stimuli, they can get confused

- **Literality**

They interpret what they hear quite literally.

They tend not to understand jokes fully

- **Learning problems**

Most of the learning problems are the visual-spatial limitations

Calculation: they can learn by rote practice, but may have difficulty with spatial problems such as dividing a circle.

They can have learning problems because of their difficulty of 'reading between the lines', using social context information

They may have difficulty distinguishing between a main point and secondary points.

To write single digit characters (1, 2, 3 etc.) is sometimes difficult due to left and right orientation

- **Skills at school**

They need to learn exercises, actions, and sums mechanically in order to reproduce them.

They can more easily learn multiplications and division answers by rote

They are generally good at learning things through verbalization, like stories.

They tend to be good at the technique of reading itself.

It is easy for them to learn languages

They have good oral presentation skills, for example school play-acting.

- **Social skills**

They really want contact, but they do not know how (clumsy)

They might not have many friends

They are sometimes impulsive in contact

They are clumsy in contact because they might not understand non-verbal signals

When they pick up the non-verbal communication, they might misinterpret them.

They lag behind in social skills because they miss a lot of experiences, because friends lock them out due to impatience and ignorance of the cause not understanding the social rules.

They might not explore (withdraw from contact, shy, do not ask questions)

They are lively in class, but they withdraw outside, at the playground

They can be self-willed and obstinate

- **Emotions**

They have some difficulty recognizing emotions of others, or if they do recognize emotions – they might not know appropriate responses

They can get overemotional, because it is difficult for them to express appropriate responses, and they may then become even more sensitive to other people seeing their struggle with the situation.

- **IQ test**

There is usually big difference between the verbal IQ (minimal 20 points higher) and the Performance IQ., except they have a mental handicap, the difference may be smaller.

- **Hyperactive**

For some children it looks as if they have problems with attention, like children with AD(H)D they can be hyperactive

- **Motor-skills**

Fine motor-skills can be inadequate (to hold a pencil, hand writing, to learn new skills like tying their shoes)

Gross motor-skills (using large muscles) are not so good

Like in gymnastics and sports. They may get teased by schoolmates as a result.

They might be a messy child when they eat, even with knife and fork

- **Balance**

It is difficult with bicycling, because of balance
and there may be difficulty with any other sports requiring balance.

- **Eye-hand coordination**

Lack of concentration increases their problem of eye-hand co-ordination.

They may find it difficult to do more than one thing at a time

It may be difficult to learn to drive an car

- **Changes**

When there is a necessary change in a previously learned task sequence, they
may have to learn the new task from the beginning

They don't like to pause to collect new information, it costs too much energy.

They have their own rituals and principles

- **Time**

To handle time and space.

- **Executive functions (Planning and monitoring tasks)**

To be in a position to suppress conduct long enough to give space to the next
functions:

- *The working memory.* The millions of things our brains have to handle at the same time
- *To look forward.* Perhaps the most important function. A function to predict what we need in future and to predict the consequences of our actions.
- *To look back.* A function to save the actions of success and fail in our working memory. Without this function we will make time after time the samen mistakes.
- *Organisation (planning).*
- To talk to yourself. To help yourself with words to take through your options. You can see that when children are little.
- *Notion of time.*
- *To switch over from A to B.* This is not easy and people need a lot of exertions and self-control
- *To separate emotion and fact.* Every fact and every emotion has an objective and a subjective emotional meaning given by our brains. For instance: a traffic jam gives an objective reality of 20 minutes delay. Some people see it as an opportunity to relax while others feel victimized. Without any notion of time we will never get a chance to separate emotion from fact
- Pressure

3. Background of NLD

Byron Rourke, a Canadian Neuro-psychologist discovered at the 70th the non-verbal learning disability (NLD). He noticed that the white substance of the right part of the brains of people with NLD functions poorly. The right part of the brains has for instance the function to transport information to the left part of the brains. There is a problem in the transport of information from the right to the left part of the brains.

NLD is as far as we know a neuro-psychological disability. It is not qualified as a psychiatric disorder, defined in DSM-IV.

In the year 2002 Dr. Annemaaïke Serlier-van den Bergh has researched NLD and she has written her dissertation about it. She has a neuro-psychological practice www.knp-praktijk.nl and she tests adults and children to find out if there is a probability of NLD.

The diagnosis of NLD consists of two parts: an interview of the parents (the adult) and a test with many exercises.

The poor communication between the parts of the brain has many consequences for functioning. The performal IQ is significantly decreased. It is typically 20 or more points below verbal IQ. NLD may occur at all different levels of intelligence.

In the Netherlands there are three practices of neuro-psychology specialized in NLD.

Where were the children and (young) adults before the 70th ?

They attached probably an other name for their problems, like:

- Dyslexia
- Dyscalculi
- MBD
- ADHD / ADD
- Autisme
- Dyspraxie (has recently the term DCD)
- Lazy

Physical causes that are responsible for symptoms like noticed by NLD:

- Brain disturbance after a (car) accident
- When the thyroid has been neglected for quite a long time.

4. Case Study: Young adult

Lilian 19 years old

Lilian is a very intelligent young woman. When she was a little girl, she had almost the same problems like Joseph. She knows like Joseph how it feels to fail. Because of her intelligence, she found a way out for all the things she missed at school. She wanted to study veterinary science. She went to the VWO. With this level one gets access to university. The problems with math and sciences made that she had to go down to a lower level. Her dream was over. She went to the HAVO which level gives access to a level under the University. She chose for an education in a social direction. At that level, students do a learning program and several times a year practical work. This was too heavy for her. The combination of work and learning exhausted her. People with NLD need to learn their exercises at school and their assignments at work step by step (just like Joseph who wants to feed the cat). With the step-by-step way of learning people with NLD automate the skills. This costs a person like Lilian a lot of energy. Every time when she must learn new skills she needs to adjust. Changes make functioning for her like a hell. It is difficult for Lilian to deal with her executive functions: to plan, to organize, to have an insight and oversight at work. Lilian stopped with this study because the practical work asked too much from her.

At the practical work, every student gets a supervisor. What she needed was a supervisor who understands NLD and can deal with it. That is a problem: to find a school, a teacher, a therapist or a psychologist that can coach these NLD students.

She started a new study to become an assistant of a teacher. She finished the study, but the practical work in class asked a lot from her. It was difficult for her to keep oversight in the whole group while she was helping one part of the class.

Since last year, she works on a special school as an assistant of a teacher. She feels what children with ADHD, NLD needs. Sometimes she writes me and she tells me that the teacher didn't understand one of the children.

She had to change with an other teacher in an other class. To cooperate with the new teacher was difficult for Lilian because of all the changes. She wants to keep her job. She has been caught by anxiousness and fear for failure. She fears to be fired.

She continuously struggles with the question do I inform the employer that I have NLD or do I avoid this?

5. Discussion: young adults

What do they meet in practice?

They often change from schools, because they don't fit. Like Lilian they are forced to lower levels of education. Sometimes they have to stop with their education. They fail at places for practical work. The main problem is often a deficit of the executive functions. Their struggle is to find appropriate support.

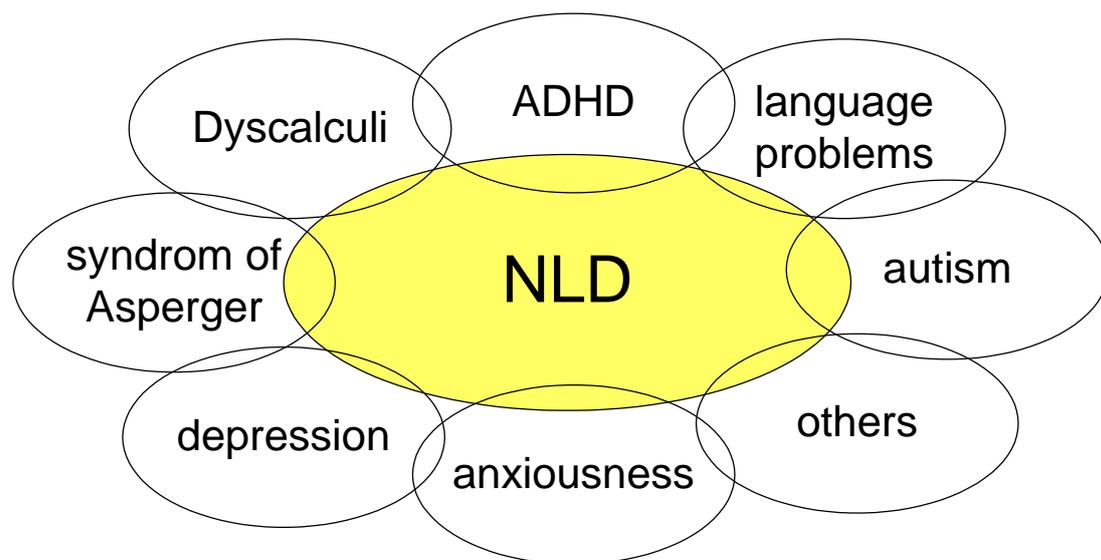
The consequences

They get exhausted of all the work, pressure and a lack of understanding. They can get a burn-out and depressions. Some of these young adults are admitted in a psychiatric hospital. Others stay at home with medicine for depressions. Some of the young adult consider suicide.

Positive side

Many young adults find a job for instance as translator or gardener. They can have benefit of their verbal strength.

NLD in combinations with other disorders.



from: "Als je kind NLD heeft", Karl Baert and Gudrun Vanderbecke

The young adult Lilian is an example of a person with NLD with a combination of other disorders. Lilian has also ADHD and a chronic depression. There is no medicine for NLD but for the ADHD part they can get a medicine (Ritalin). What sometimes can work for a better concentration for NLD and ADHD is fish-oil.

Combinations:

NLD / ADHD

NLD / ADD

NLD / autisme (for instance the syndrome of Asperger)

NLD / Gilles de la Tourette

NLD / HSP (High sensitive personality)

Disease of Turner / NLD

Multiple combinations of above.

The combination NLD / Asperger is a special one. There are two kinds of Asperger:

Asperger in combination with good performal skills and less verbal skills. The IQ test lets see a big difference between the performal score and the verbal score. These people are good in math and sciences. They have good visual-spatial skills. With a high IQ you will find this people for instance in technical jobs at the University.

Asperger in combination with good verbal skills and less performal skills. The IQ test lets see a big difference between the verbal score and the performal score. They have good verbal skills. You will find this sort of Asperger in combinations with NLD.

6. Case Study: Adult

Adam is an adult between 50 and 60 years old. He is one of my clients. When he came to me for the first time he wanted to tell me his life events shaped by NLD. A part of his story:

“At home I played with my brothers and sisters. Outside I was a shy boy who didn’t ask any questions. I wanted to play with the neighbor children but I was very clumsy. When we had visitors at home, I did hide myself in my room. I couldn’t find an attitude to behave socially. I wanted that so badly but I didn’t know how. I felt that it was difficult for my parents with 5 children to survive with the little bit of income they had. I really felt that. I was a social child but I didn’t know how to express that.

At school, kindergarten, carpentering didn’t say me anything. I can’t remember much about that period. When I learned to read and write, I had problems to understand the meaning of exercises.

The math exercise $4 + \dots = 10$? (4 plus something makes 10) What do they want from me? At home, I told my father my problem with the math exercises. My father told me that it was very simple and gave me an other explanation. The next day I made my math exercises.

My younger brother had the same problems in his social environment and with his math exercises. I think we have an heritable taint of my mother(s) (family).

After primary education, I went to the MULO. That was a good education at that time. I chose for the language side. I found myself a job as a civil servant at a tax office. I did this work for more than 30 years. What kind of problems did I meet at work?

To speak in public was difficult for me. I was afraid of the reactions of my colleagues afterwards. I was afraid to fail. Several years ago, the government agencies started with the automation of the workflow. Every month and sometimes every week, we had to deal with changes of the law and the bills. The changes and the high pressure at work exhausted me. I can’t function when I feel pressure. I came for hours too late at work. I had all kinds of symptoms of a burn-out, but I didn’t recognize that. I got a burn-out.

At home, I was very depressed and I was admitted to a psychiatric hospital. The psychiatrist gave me medicine for my depression. I was afraid that I had a disorder. I knew that there was something wrong with me. I was not able to explain my complaints. I couldn’t explain and understand what happened in my head and body. The occupational therapy was too difficult for me. I didn’t understand the ball-sport and I couldn’t see the squares and figures of the chess-board. The psychiatrist recognized the symptoms and told me that I probably had NLD. No other psychiatric disorder. He said: “how did you survive that all those years”.

I often had a feeling that nobody liked me. However, when I went home for a weekend many patients told me that they had missed me.

I drive a car with a navigation system to find the way. I have a specialized housekeeper to help me to order the mess. I have no oversight in the house when I have to clean. With a checklist I succeed to clean.

I never had an relationship because of my social handicap. Since I know that my deficits in life have a name I met a nice woman. We have a very nice time.

Pressure is a main point in my life. Pressure and agitation paralyse me. I loose the function of time. Be on time at an agreed place is very difficult for me.”

While Adam told me his experiences of his life, he looked aside to me. Suddenly he stopped with talking and he told me that he wanted to see my face. He did a step forward and looked me in the face. He said: “I see your face, your eyes, your mouth. You have a friendly face and I think you are a nice person”. Adam is not able to do two things together: to communicate and to observe at the same time. He needed a time-out for that.

Before the second session, he called me that he was afraid to come. The pressure to come and to function let him down. I invited him to visit my new practice and to drink a cup of tea with me. He came two hours later. His reaction when he saw my practice was very literal “nice room, beautiful ceiling....” Since than we have good sessions and step by step, he succeeds to be on time.

7. Discussion: adults

Some adults discover their own NLD due to the diagnosis NLD of their own child. Others recognize themselves in the description of NLD in magazines or internet. When they are diagnosed with NLD than they suddenly start to understand themselves. It also explains to them why people in their environment didn't understand them. They also haven't been supported by specialists or other professionals.

What are the consequences of the lack of diagnosis and support on their personal development?

- They lag behind in social skills.
- They can have behavior problems.
- They get stuck in many many jobs
- They may have problems in personal relationships

The long-term consequences are:

- Work and activities cost a lot of energy
- Social isolation. (for example, when they don't understand the rules and the game the other players don't ask them for a second time)
- Depression
- Burn-out
- Everlasting search for support

Even when diagnosed it is very difficult to find professionals for support and therapy of adults with NLD.

Many adults have been misdiagnoses in the past with all the consequences of wrong therapies and support.

8. Summary and literature

Children and (young) adults often don't know that they have NLD. They are often poorly understood by people in their environment. This may lead to fear of failure and social problems. These experiences are damaging.

If they know that they have NLD, then although they are diagnosed it is still difficult to find support for instance for children at school, for young adults for education and internships, and for adults when their work environments gets automated and restructured.

Literature in English:

Kathryn Stewart, Ph.D., *Helping a Child with Nonverbal Learning Disorder or Asperger's Syndrome*, New Harbinger Publications, 2002

Annemaaike Serlier-van den Bergh, *Development and Validation of the Dutch Nonverbal Learning Disabilities Scale and Dutch Preschool Nonverbal Learning Disabilities Scale. Decision process within NLD assessment*. Universiteitsdrukkerij KUB Tilburg, 2002

Articles by Byron P.Rourke: <http://www.nld-bprouke.ca/>

<http://www.nldontheweb.org/>