

Wireless Systems

The
Link
to
Learn



Philip



Michael



Laura

EduLink™

– the direct link between
teacher and student



PHONAK
hearing systems



When behavioral disorders are a problem

Many children seem to have a problem coping and keeping up with everyday activities. This manifests itself in behavioral problems ranging from lack of understanding and the inability to complete tasks or follow instructions to short attention spans and impulsive, uncontrolled behavior. These children will have a more difficult time performing well in the classroom.

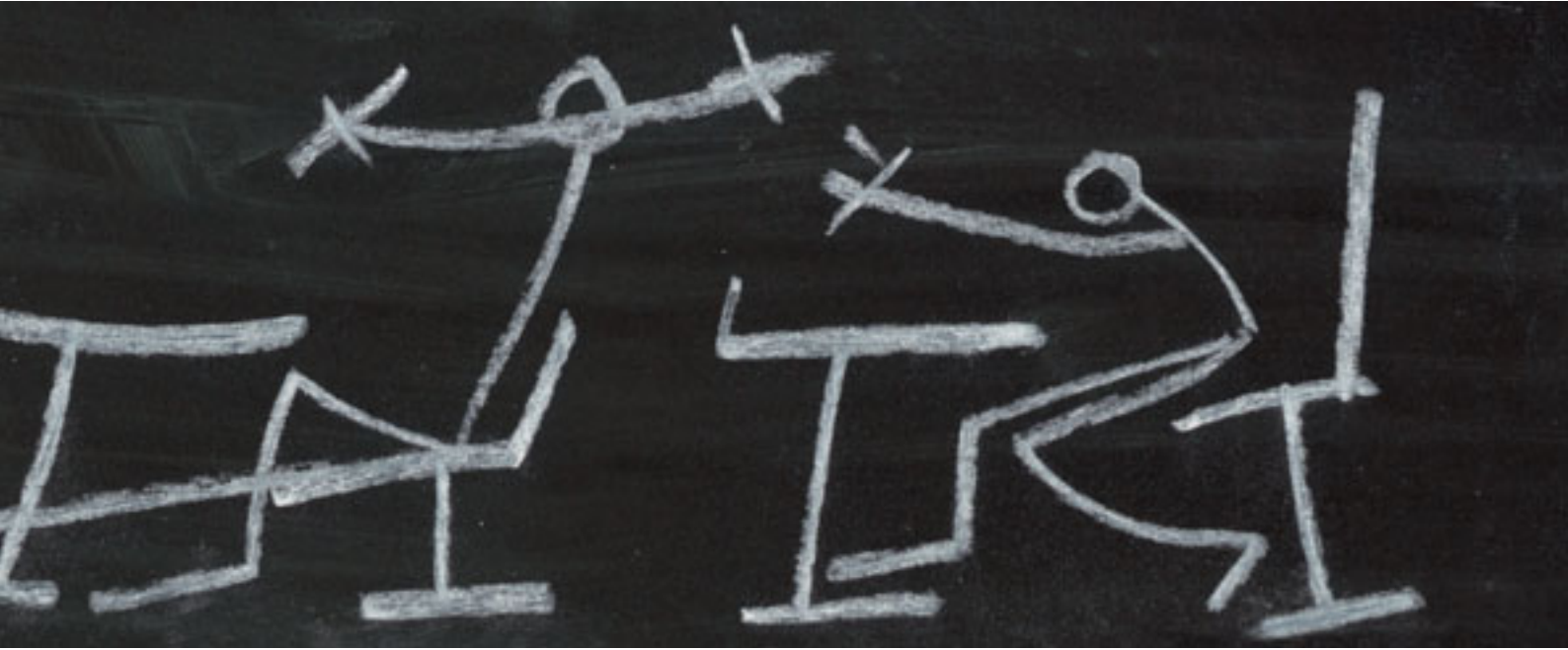
Much of this behavior is symptomatic of 'specific performance deficits' – or rather impairments of learning and performance in normally intelligent children with no evident physical or mental health issues, and normal hearing.

Auditory Processing Disorder (APD), Attention Deficit/Hyperactivity Disorder (ADHD) or specific Learning Disabilities (LD) are possible diagnoses connected to specific performance deficits.

A focused treatment based on thorough diagnostics of all possible influences can result in a significant improvement.

The ideal learning environment

Something else to keep in mind is the quality of the learning environment. Children with specific performance deficits really do need the best possible classroom conditions.



Individual therapeutic approaches

Auditory processing is a very complex research field requiring the cooperation of many scientific and medical disciplines. This makes APD diagnosis correspondingly difficult and resource-consuming.

In many cases, parents first notice developmental deficits when their child starts school and finds it difficult to keep up in certain subjects. Should the parents or teacher suspect a specific deficit, now is the time to seek specialist advice.

The first point of contact often is an audiologist, a pediatrician, psychologist, ENT doctor, neurologist or speech therapist with the necessary experience in diagnosing and treating specific performance deficits.

Just as multi-faceted as the symptoms of APD are the methods and therapies for addressing the disorder. Every APD case is different and calls for its own therapeutic approach and strategy.



Auditory Processing Disorder (APD)

Laura – horses mean the world to her

Laura is eight and quite shy. She is crazy about horses which is obvious from the posters that cover her bedroom walls. Her birthday wish is to start riding lessons but her parents say she must first do better in school.

Laura finds English class the hardest. She keeps forgetting words in dictation, and often spells them wrong. Her reading is slow and laboured.

This puzzles Laura's teacher. When they are alone together, Laura is motivated and responsive. But in a classroom situation she seems uninterested and finds it hard to keep up with the lesson. Whenever there is a hubbub, her attention all too quickly wanders from the board to the window, and the cars passing by outside.

Tests revealed no psychological or behavioral issues, nor are there any problems at home. Laura's intelligence is normal for her age. Yet school difficulties cause her to feel stupid and, subsequently, she is increasingly withdrawn.





Laura's problems are symptomatic of Auditory Processing Disorder (APD):

Children with APD have trouble remembering and repeating instructions and other information they hear. They are unusually sensitive to sounds, have difficulty understanding against a noisy background, and confuse similar-sounding words.

Just like Laura, children with APD usually have normal intelligence – sometimes even above average – as well as normal hearing. Nevertheless, they have difficulties understanding. The problem is not the ear itself, but further on in the brain, where the ear's raw auditory signals (nerve impulses) are processed and analyzed.

Auditory processing is the foundation for all sorts of key brain functions, like comprehending speech, grasping its meaning, and detecting emotional nuances. In short: auditory processing is absolutely vital to learning and communication.

Laura is among the three to five percent of children who exhibit varying degrees of APD.

Experts assume that APD is at least partly responsible for many school learning difficulties, as well as being pivotal in the development of speech disorders. APD may also figure strongly in the emergence of Dyslexia and Dysorthographia, two common reading and writing disorders.



Attention Deficit Hyperactivity Disorder (ADHD)

Philip – the fidgeter

Philip is a very lively 8 year old boy. He loves soccer – and his parents love him to play, so he gets plenty of exercise and opportunities to work off steam.

Like Laura, Philip also has problems keeping up with his classmates, even though his intelligence is virtually the same. According to his teacher, Philip is fidgety and has enormous trouble concentrating for even a few minutes. He tends to rock in his chair, and the slightest thing can distract him.

Philip's parents are concerned at his apparent forgetfulness and the way he loses track of even the simplest things. Also he will often chatter for ages. Homework sessions can turn into marathons, as his concentration slips again and again.



Philip's symptoms indicate a case of Attention Deficit Hyperactivity Disorder (ADHD). In certain children – mainly girls – attention deficit may also manifest itself without the hyperactivity dimension. Experts estimate that 4 to 12 percent of children are affected by attention deficit disorders.



Learning Disabilities (LD)

Michael and his dinosaurs

Michael is into dinosaurs, adept at identifying just about every one of these extinct giants. A model dinosaur collection is proudly displayed on the shelf in his room, all neatly arranged by size.

At school, Michael does his best with the teacher's worksheets. But he frequently mixes up letters and is unable to distinguish their differing sounds. At the age of ten, Michael still writes like a first-grader. In math lessons, he gets digits in the wrong order – 31 instead of 13 – and tends to confuse the meanings of mathematical symbols.

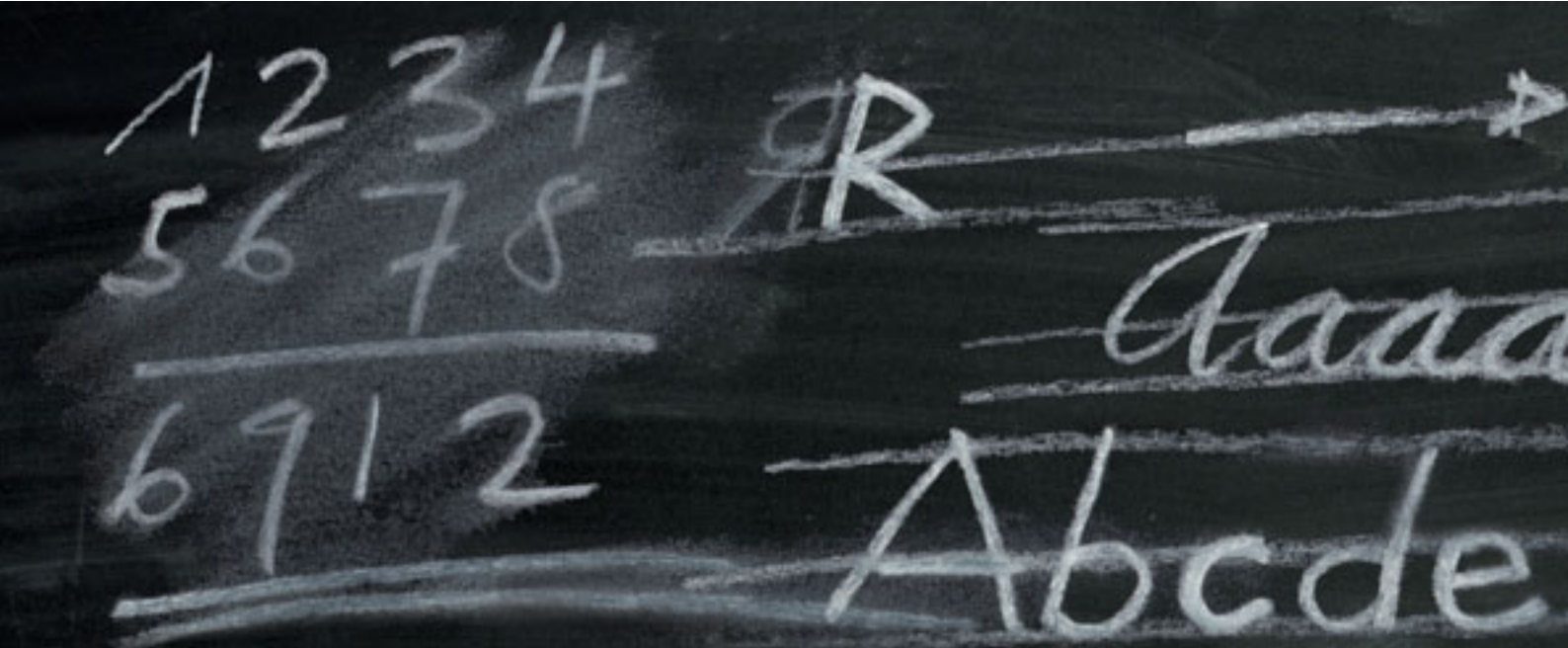
Homework often ends in tantrums. If Michael gets stuck, he flies into a rage and may send his dinosaur collection crashing off the shelf. When he feels frustrated, Michael finds it very hard to keep emotions in check.

Michael is by no means unintelligent. On the contrary, his intelligence has been tested as higher than his

classmates'. But due to his learning disorder, he has huge difficulties with schoolwork.



Some 5 to 7 percent of children – like Michael – are affected by Learning Disabilities. These frequently arise from untreated APD and ADHD.



Listening and understanding are crucial in the classroom

Many children with specific performance deficits have one thing in common: difficulty with filtering speech from general environmental noise. This puts them under additional strain in the classroom.

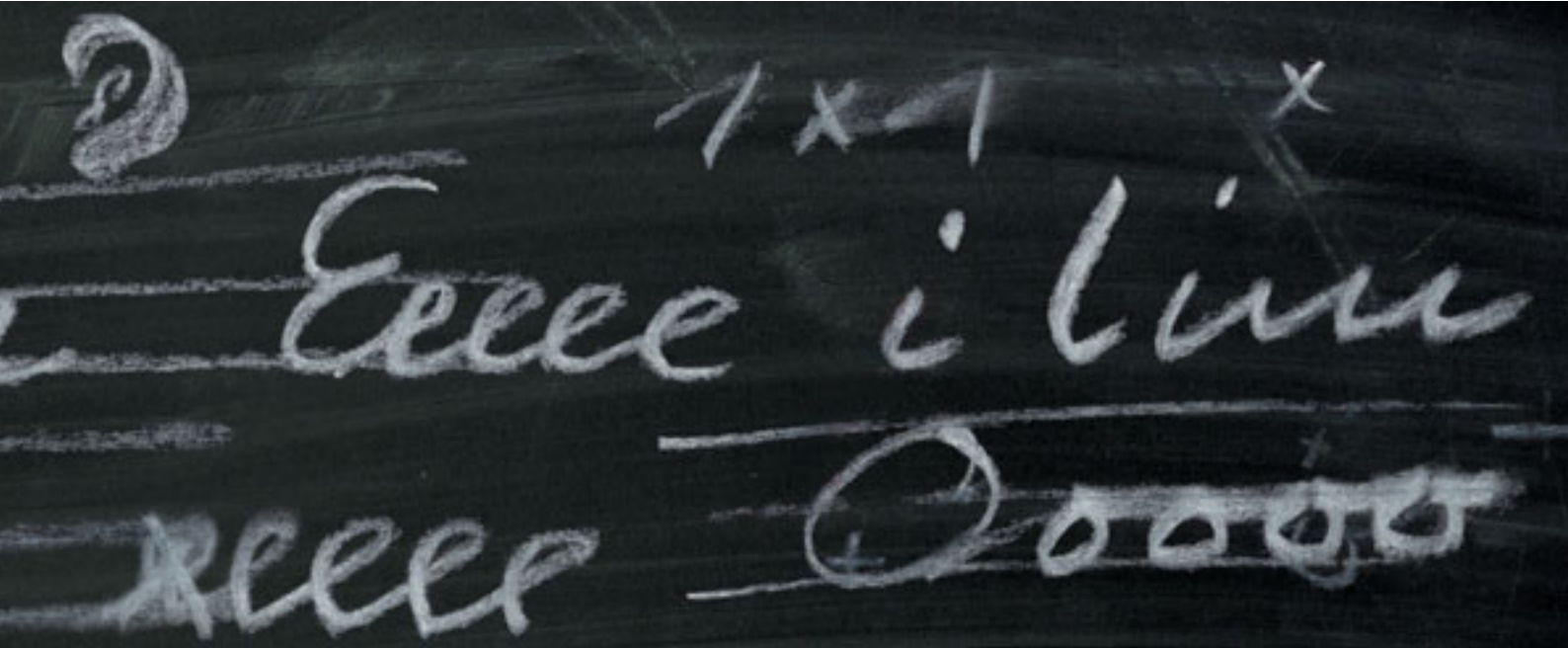
The same situation completely overwhelms a child with Auditory Processing Disorder. That child simply must be able to hear the teacher's voice clearly and without interference.

Other children can adapt to poor classroom acoustics and selectively filter the teacher's voice (although they certainly have greater difficulty than adults).

Technological help is needed

- The teacher's voice reaches a level of around 65 decibels at the center of the classroom.
- Environmental noise in a class of young children also runs to 60-64 decibels.
- That puts the teacher's voice only marginally above the environmental noise – or even below for students sitting at the back of the room.
- Sound reflects off ceilings and walls, producing echoes that make speech even harder to understand.

Studies have shown that children with Auditory Processing Disorder (APD) must be able to hear the teacher's voice up to 20 decibels louder than the environmental noise. This difference in decibels only can be created with the help of technology!



EduLink™ – the Link to Learn

EduLink is a miniaturized FM system that Phonak has developed specially in the context of specific performance deficits.

EduLink is used to complement therapy and ensures that important information reaches the ear as a priority, up to 20 decibels louder than the environmental noise.

EduLink enables the child to receive the teacher's voice at any time without difficulty – even with a great deal of environmental noise.



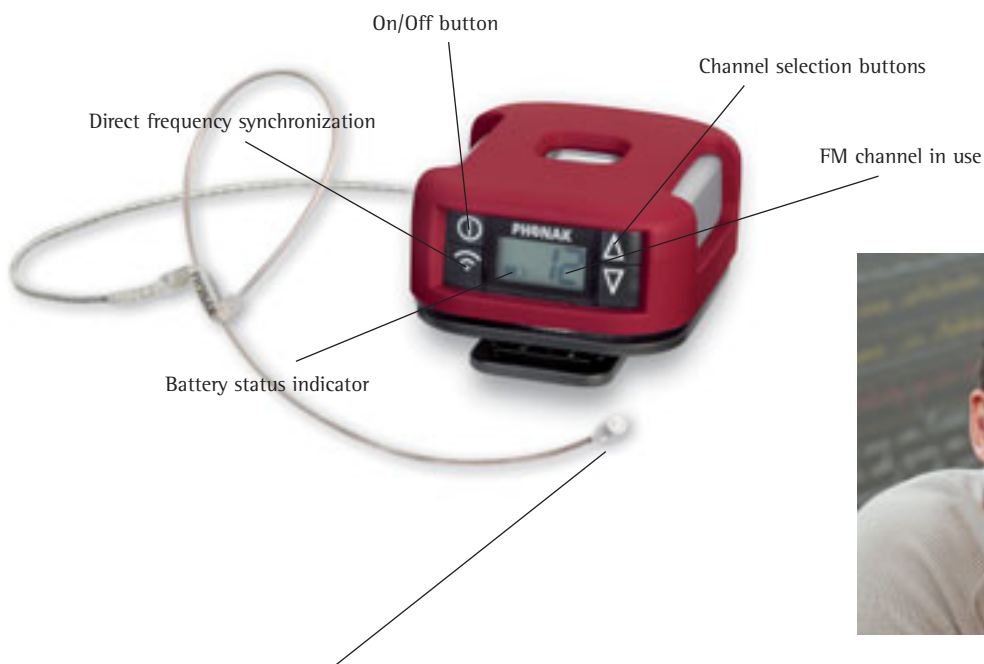
Encouraging results

Studies conducted in the USA and Europe show that EduLink greatly improves speech understanding in the classroom. This in turn has a most beneficial supportive influence on therapy. It also creates a crucial success experience for the children themselves, who right away find it easier to pay attention and learn.

EduLink gained strong acceptance among the children in the studies and their classmates. They immediately took to the devices and showed pride in their contemporary, high-tech design.



The direct link between teacher ...



The MicroBoom microphone is elegant, high-tech, ultra-lightweight and simple to use. Positioned adjacent to the speaker's mouth, it delivers considerably better sound quality than other microphones.

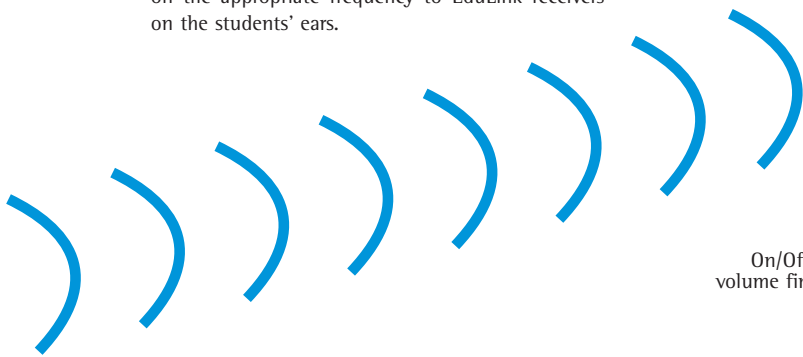
The teacher carries a small FM transmitter and a microphone.

Campus SX is a miniaturized transmitter designed for practicality, so that teachers can concentrate fully on their students.



and student

The Campus SX transmitter automatically broadcasts on the appropriate frequency to EduLink receivers on the students' ears.



With an inconspicuous EduLink receiver worn over each ear, a child can always hear the teacher's voice loud and clear.



EduLink features contemporary design, similar to the latest cell phone headsets. This guarantees acceptance by the wearer and other children in the class.

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Further information

There is more information about EduLink available on the internet: www.phonak.com/edulink

Phonak publishes internet fact sheets with information for many different countries, along with local contact addresses.

The Phonak Group specializes in the design, development, production and worldwide distribution of technologically advanced hearing systems. The combination of expertise in hearing technology and a strong distribution network allows Phonak, along with its customers and business partners, to make a substantial improvement in the quality of life of individuals with hearing impairment.

With a market share of approximately 15% worldwide, the Phonak Group is one of the major players in the hearing healthcare market.

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