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Zachary Penn

Authorized Representative Order Date: 05/07/2025

lachory Denn

SureTranslation 1606 Headway Cir, #9637 Austin, TX 78754 United States



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Things of Life

## SOCIETY

The computer helps to recover speech

Sant Pau Hospital uses computers to reeducate language

The Generalitat distributes the same software to speech therapists in schools

More than 5,000 Catalans suffer a brain injury that prevents them from speaking

ANGELS GALLARDO Barcelona

People who have forgotten how to speak after suffering a stroke, a brain tumor, or a severe blow to the head are trained at Sant Pau Hospital in Barcelona using computer programs—with no precedent in Spain—that produce surprising results in verbal learning, says Dr. Josep Maria Vendrell, head of the hospital's Neuropsychology Service.

The educational merits of this software, designed by the hospital's School of Language Pathology (EPL), are such that the Generalitat has purchased from Sant Pau the copyrights to these programs and has distributed them to schools throughout Catalonia, where they are already used to strengthen language skills. The diskettes are used to stimulate reading and writing in children with dyslexia, speech sound disorders, and other language impairments, as well as to teach Spanish, Catalan, or Valencian to newly arrived foreigners.

Computer-based approaches to language disorders in children and adults were introduced several years ago in other European Union countries, and clinical studies already confirm that computer use leads to speech recovery "earlier and better," Dr. Vendrell explains. In Catalonia, this resource is employed at Vall d'Hebron Hospital—with one computer—and at the EPL of Sant Pau, where four terminals accommodate 20 people every morning.

This setup cannot accommodate the approximately 5,000 people who suffer brain injuries in Catalonia, most of whom have lost the ability to speak. The Catalan Health Service (SCS) has begun a trial with these programs and, if it proves economically feasible, will distribute them to the remaining hospitals in Catalonia.

Like a person

"A computer interacts with a person's language impairment, responding and combining words and images at a pace you can't achieve with other educational materials," says Dr. Vendrell. "If it's well programmed, a computer allows for an immediate response very similar to what you get in a real conversation," he adds. "That's impossible to achieve with worksheets, games, or cutouts. A computer can combine a set of words in many different ways and instantly tell you if you've answered correctly, if you've understood, or if you need to try again."

Patients who come to the EPL at Sant Pau spend an hour in front of the computer and, if they can, they buy the programs and practice at home. Oscar, a seven-year-old boy who struggles to understand language because he fell to the ground when he was a baby, visits the hospital twice a week. "Where is the frog?" the little screen asks him. The child, who has barely been given any instructions about what he is looking at, moves the mouse and points to the little animal that appears on the screen. This shows that he has understood the meaning of "frog." Immediately, a huge smile appears, and Oscar knows he got it right. "See how quickly he gets it," Dr. Vendrell remarks.

A lack of conversation with a child—or excessive hours in front of the television, according to speech therapists—along with meals that require little chewing effort, are two of the causes specialists say explain why many children find it increasingly difficult to pronounce an "r" or an "s" correctly. "Those speech sound disorders—experienced by children and adults (including some TV presenters)—can be corrected. The worst part is that sometimes people find them amusing," Vendrell says.

A child works with the computer equipment that helps correct speech defects.

## THE CAUSES

From a blow to an emotional shock

A language disorder can arise from a mental disorder, an emotional shock, or a brain injury. When the cause is mental, speech disappears or becomes an incomprehensible form of communication. If it is due to emotional conflicts, it may appear as stuttering or dyslexia (the inability to properly interpret what is read or heard). When the cause is a brain injury resulting from a stroke, a traffic accident, or a tumor, it can lead to aphasia (loss of language function), to a speech sound disorder, or to dysglossia—difficulty pronouncing words because of a cleft palate. In all these cases, reeducating speech is possible, but the process takes at least a year.

Learning with diskettes is less depressing

A young person with a mentally active profession who loses their entire linguistic repertoire because of a traffic accident has a hard time accepting the inevitable "back to school" process required to regain speech. Doing it with a PC feels much more stimulating—or less depressing—than relying exclusively on the help of a speech therapist, explains neurologist Dr. Josep Maria Vendrell.

"The computer spares these individuals the feeling of ridicule or uselessness that many of them experience," Vendrell says. "They like the idea of getting into computing; they feel they are staying in touch with new technologies. Although the speech therapist is the one who sets the guidelines, they can make progress on their own—provided they buy the computer and diskettes, of course."

## A fun game

Something similar happens with children who suffer from dyslexia. The computer programs distributed in schools stimulate sight, hearing, speech, and manual skills. This means that, rather than a memorization class, the speech therapy session becomes a fun game. Moreover, computer support speeds up language readjustment, Vendrell indicates. "They do not replace the speech therapist, but they reduce recovery time because they multiply the effect of what these specialists plan," he adds.

Between 3% and 6% of children over the age of seven suffer from dyslexia. This disorder results in a lack of knowledge of the alphabetical system and the inability to analyze the components of words. Children with dyslexia read very slowly, make errors and omit letters, arrange sentences in a disorganized way, and often pronounce words unintelligibly. They attend class but need educational support.