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Identifying learning disabilities by means of evoked potentials

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Learning difficulties refer to a series of disorders that affect the learning of people without intellectual disabilities and who demonstrate at least average essential abilities to think and/or reason. Learning problems appear when there is a deficiency in the brain in one or more processes related to, for example, perception, thought, and memory.

The correct identification of possible learning difficulties is the first step to guaranteeing that people who suffer from some type of disability can receive the necessary attention so that the difficulty does not prevent them from achieving success not only academically but also in life.

By using the BAEP technique, which is easily feasible, non-invasive, and inexpensive, and by evaluating wave VI, it is possible to determine the existence of a certain type of learning disorder.

For a correct diagnosis, it is essential to know the functioning of the cerebral neuronal circuits that intervene in the generation of learning processes. This knowledge has been clearly increased by advances in the development of new visualization techniques and functional analysis of the brain that allow the study of brain regions and circuits that are activated during the evolution of learning.

The analysis of the records of modifications of the electrical potential produced by the nervous system in response to external stimulation, in this case of an auditory type, allows for diagnosing neurological disorders, through the responses that these stimuli provoke in the different brain regions, observing the alterations in the latencies of the VI constitutive wave of the evoked potentials.

In this work, the interest is to identify the different types of learning difficulties disorders using evoked potentials.

Biography

María Isabel García-Planas received the PhD in Mathematics from Universitat Politècnica de Catalunya, Barcelona Spain, in 1995. She joined the Department of Mathematics at the Universitat Politècnica de Catalunya, Barcelona, Spain as associate professor in 1996. Her work had been centred on Linear Algebra, Systems and Control Theory and Neural Networks. She has authored over two hundred papers having been cited more than 700 times (more than 300 after 2015), and serves on the referee on numerous indexed scientific journals. She has been plenary Speaker in several International Conferences.