

## **New Advances in Brain Assessment and Learning**

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The main components of learning are situated into the Brain. A better understanding of the mechanisms of the different parts of the Brain allow to discover how learning is processed and how emotions play a crucial role in this process. New technology such as EEG systems, Eye Tracking and Virtual Reality allow to measure the impact of emotions on the ability of the Brain to acquire new knowledge and to link it to previous knowledge. In this presentation we will show how emotions can foster or reduce knowledge acquisition and how EEG can highlight the level of receptivity of the Brain. This assessment provides precise indications on the kind of pedagogical interventions to realize in order to improve the transfer of knowledge in educational presentations. We will see how Eye Tracking can predict the students' performance. We will give examples of studies on gifted students and on patients suffering from Alzheimer disease, leading in this case to a reduction of cognitive functions. We will show how Virtual Reality systems can improve Brain concentration, reduce the stress and improve knowledge acquisition.