Abstract

Brain-Computer Interface (BCI) associations the human’s neural world and the outer physical world by interpreting individuals’ brain signals into commands detectable by computer devices. In BCI cognitive neuroscience is a vital research field. In recent years, increasing studies have employed many technologies to monitor students’ cognitive states and attempted to provide adaptive interfaces and contents accordingly to improve learning efficiency of students. As there is a lot of literature on the theory, method and practice of psycho-physiological analysis in BCI context, in this paper we are only covering the part relates to cognitive state estimation with respect to learning activities. Detecting cognitive states is an important step towards adaptive learning because of this reason we move to set the goal of this paper is to review the learning activities and the parameters involved in estimating the cognitive state. According to this study the various authors has done the work on various learning fields such as Mathematics, Engineering, Programming and Medical helps to assess the cognitive states like memory, engagement, mental workload, attention etc. at National and International level.
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**Index Terms**

Computer Science

Signal Processing

**Keywords**

Cognitive States Learning Activities, BCI, Electroencephalography