The design of grid-Based learning system with LEI analysis / 王翔儒 撰 .- 彰化縣大村

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ABSTRACT

The traditional E-learning often offers the online examination to assess the learning effect of a student after completion of the online learning. Basically, this traditional learning assessment mechanism is a passive and negative assessment mechanism, which cannot provide an real-time learning warning mechanism for teachers or students to find out problems as early as possible (including such learning conditions as “ absence of mind ” resulting from poor learning stage or physical or psychological factor), and the post-assessment mechanism also cannot assess the learning effectiveness provided by the online learning system. This research, applying the concepts from the fields of Cognitive Neuroscience, proposes a design of grid-based learning system with the function of learning energy analysis. By brain wave sensors, the proposed system captures the EEG signal and automatically analyzes the values of learning energy related to learning. The proposed Grid-based Learning System with Learning Energy Index (LEI) not only provides the analysis of learning status for students, but also provides teacher the evidences of their learning performance during online learning. Besides, the system applies Improved Ganglia Agent (IGA) to provide a grid-based flexible extension mechanism for distributed SCORM materials. In the future, through the analysis function of the learning energy detected by the embedded brain wave sensor, the system not only can offer an instant warning mechanism of learning, the teacher can also understand the whole reason further that cause learning disorder, and offer the care and encouragement in good time.

Keywords : Cognitive Neuroscience、EEG、LEI、Ganglia

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