World Academy of Science, Engineering and Technology
International Journal of Educational and Pedagogical Sciences
Vol:14, No:09, 2020

Development of Electroencephalograph Collection System in Language-Learning Self-Study System That Can Detect Learning State of the Learner

Authors : Katsuyuki Umezawa, Makoto Nakazawa, Manabu Kobayashi, Yutaka Ishii, Michiko Nakano, Shigeichi Hirasawa

Abstract : This research aims to develop a self-study system equipped with an artificial teacher who gives advice to students by detecting the learners and to evaluate language learning in a unified framework. 'Detecting the learners' means that the system understands the learners' learning conditions, such as each learner's degree of understanding, the difference in each learner's thinking process, the degree of concentration or boredom in learning, and problem solving for each learner, which can be interpreted from learning behavior. In this paper, we propose a system to efficiently collect brain waves from learners by focusing on only the brain waves among the biological information for 'detecting the learners'. The conventional Electroencephalograph (EEG) measurement method during learning using a simple EEG has the following disadvantages. (1) The start and end of EEG measurement must be done manually by the experiment participant or staff. (2) Even when the EEG signal is weak, it may not be noticed, and the data may not be obtained. (3) Since the acquired EEG data is stored in each PC, there is a possibility that the time of data acquisition will be different in each PC. This time, we developed a system to collect brain wave data on the server side. This system overcame the above disadvantages.

Keywords : artificial teacher, e-learning, self-study system, simple EEG
Conference Title : ICHELTP 2020 : International Conference on Higher Education Learning, Teaching and Pedagogy
Conference Location : Singapore, Singapore
Conference Dates : September 08-09, 2020