Developing an effective ESP curriculum integrating analysis with NIRS for engineering students

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Abstract

This study describes that how to develop an effective ESP (English for Specific Purposes) curriculum by using analysis with NIRS (near-infrared spectroscopy) for engineering students from the viewpoint of brain science and educational technology. ESP is often defined as English language teaching which is designed to meet specified needs and related in content to particular disciplines, occupations and activities of learners in contrast with general English. Recently, it has been noted that Japanese students' English skills were declining. Therefore, designing and developing an effective course design to meet ESP goals: to develop global engineers who can work in the English-only professional settings, for acquiring English communication skills has been a critical need. To solve this concern, the present study examined the effectiveness of analysis using NIRS for ESP listening and shadowing training from the perspective of brain science and educational technology. NIRS is widely recognized as a practical non-invasive optical technique to detect characteristic of hemoglobin density dynamics response during functional activation of the cerebral cortex. The more the amount of blood flows, the more hemoglobin oxygenation gains; measuring the amount of blood can show the state of brain activation induced by the differences of trainings and learners' characteristics. From the experimental, the well-matched combination of training for Japanese engineering students has been suggested and contributed to develop an effective ESP curriculum.

Biography

Rumi Tobita is an associate professor of department of Innovative Engineering, Ashikaga Institute of Technology. Ms. Tobita holds a Bachelor of Liberal Arts degree in Language Education, a Master of Education degree in Audio-Visual Education, and certification of Doctoral Candidate in Audio-Visual Education from International Christian University, Tokyo, Japan. Her research topics are Computer Assisted Language Learning (CALL), Educational Technology, Curriculum Development, English Program Development, English for Specific Purposes, Extracurricular activity and International Exchange Program Development, and Brain Science. She has taught several fields of courses such as Educational Technology, Social Information, Brain Science besides English courses for engineering students for more than 10 years. She is committee member of The Japan Association for Language Education and Technology (LET) and also local organizing committee of WorldCALL 2008.