Vocab Learning by Imagery (iVL) – An interactive web-based platform to assist Architecture, engineering and construction (AEC) students in learning technical vocabularies through imagery

Project Number: 6000684

Principal Investigator: Dr. Tak Wa Caroline CHAN

Grant Type: TDG

Abstract:

Architecture, engineering and construction (AEC) students often need to learn and memorise a large volume of technical vocabulary within a short period of time, preferably within the first semester of their university study when they learn building technology. Mastery of these technical terms is essential to learn building technology and many other core subjects such as building design, building measurement, legislation and control. Many AEC students, especially those who are weaker in English, experience great difficulty in memorising these vocabularies. Nevertheless, asking our AEC students to learn vocabularies using the traditional methods, such as reading, writing and reciting the words is too boring to be effective.

When tackling the learning difficulties and needs of the post-millennial students, we need to understand their learning behaviour. Many studies related to post-millennial students indicated that they prefer the use of multi-media, learning through collaboration with peers (Bart, 2011) and the use of visual pictures (Robb, 2013) in class. The popularity of these instructional methods can be explained by their academic and social benefits. For instance, most people, not only young ones, remember pictures better than words. This is due to the picture superiority effect (PSE), a phenomenon proved by over 50 years of research studies being an effective way to improve memory (Hockley, 2008 ; Kinjo & Snodgrass, 2000). Studies of the PSE established that the presentation of pictures, rather than words, has a beneficial effect on associative memory and item recognition (Mintzer & Snodgrass, 1999). Furthermore, memory retention can be boosted if there is intentional repetition in the learning process (Gerbier et al. 2015) . For the preference to an interactive and collaborative learning environment, many researches evidenced that such environment allows students to build friendship with their peers, better understand their peers (Brown, 2008) , improve learning effectiveness and enhance their transferable skills (Healey et al. 1996) . Students opined that integrating collaborative learning into classroom activities makes learning more interesting and effective.

To assist the AEC students in learning technical vocabularies, an interactive e-learning system, Vocab Learning by Imagery (iVL), which utilises imagery to help students to learn and remember the technical vocabularies in a collaborative way is proposed in this project. Before the end of every lesson, matching questions or multiple-choice questions related to the content (e.g. to choose the correct image for the term "door latch" from some door ironmongery images) will be prepared and uploaded by a few

students. Students can choose to draw or photograph, or download the images from the web when setting the questions. The rest of the class will give their answers through the system. If necessary, questions from the previous lessons can be selected randomly for answering again to enhance memorisation. The teacher will act as a moderator whereas the students will take turns to prepare the questions for their peers in each lesson. From the learning perspective, students will take greater ownership and responsibility for their learning, fostering a more interactive and cooperative learning environment. From the teaching perspective, the teacher can monitor the learning progress of the class and individuals through their in-class participation and their performance in the tests. Slow learners can be identified promptly to provide further assistance. The teacher may upload extra questions to reinforce students' understanding or memorisation of specific terms.