

The core knowledge of course content of Techniques of Biomedical Research in the Biomedical Sciences Programme, students are required to learn the principal of radiation sources that are related to the radioactive chemicals; also need to know how to handle and use them in a proper way under the government ordinance, which are still adopted in the protocols of biomedical research and healthcare occupational settings. Concerning the laboratory safety, training the skills in handling of the radioactive chemicals causes difficulty as they are hazardous and harmful to health causing the potential problem with high-risks and impacts. The students may be threatened with fatal if the handling procedures are improper during the practical training. Nonetheless, the concept of “experiential learning” has become hostable to the undergraduates who must be well-trained for good laboratory practice and etiquettes.

The primary objective of the proposed project is to build up innovative courseware using VR technology for handling chemicals that are harmful to health, entitled as VR-Handling Radioactive material (VHand). We also aim to investigate whether virtual reality (VR) technology is helpful in stimulating students with limited laboratory experience in managing radioactive chemicals, preventing unpredictable accidental issues, and supporting active and constructive educational sector.

After the data analysis from the process evaluation, the impacts of the VHand can be discussed in three-folds: (1) the innovative teaching courseware enhance study motivation via e-learning medium and equip their necessities in the future career path; (2) stimulate higher-order critical thinking by discussing clinical scenario case studies among students; (3) reinforce cognitive and foundational knowledge and clinical skills through online quizzes and case scenarios studies exercise.

The widely use of VR in the application of education is now popular as the immersive virtual three-dimensional world makes the learning process more effective and active than the traditional one. Significantly, our project team will further disseminate the courseware to other tertiary institution for the practical training related with the usage of radioactive materials.

The short video provided is for the exposure of the advantage of our courseware in the education.