THE CHINESE UNIVERSITY OF HONG KONG

Micro-Module Courseware Development Grant

Scheme 1: Basic Scheme

Interim Report (2017-18) (Additional Call)

Report due 31 August 2018.
Please return by email to mmcd@cuhk.edu.hk

PART I

Project title: An Integration of Virtual Reality Courseware in Handling the Radiation Sources

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Project duration: From March 2018 to October 2018

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1. Project objectives

In the core curriculum of 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 team is on track developing the courseware using VR technology for handling chemicals that are harmful to health.

2. Progress on process, outcomes or deliverables

In this project, we aim to create a learning platform using VR technology called, "Virtual Radioactive Chemicals Handling **(VHand)**" with the goal to provide educational opportunities in reinforcing knowledge of biomedical techniques. Additional features offered by HTC Vive® immersive system and leap motion device have been being incorporated for perceptional and experiential learning.

Our team has already set up the storyboard of the VHand and the context of the micromodules. Refinement will be made during the summer, and the courseware will be made available to the student at the beginning of the semester.

3. Evaluation Plan

The evaluation phase aims to investigate whether VR technology is helpful in instructing students with limited laboratory experience in managing radioactive chemicals, preventing unpredictable accidental issues, and supporting active and constructive educational sector. The e-survey will be conducted among students to evaluate learning experience of *VHand* after the lectures. Also, two focus-groups with four students each will be held to receive the adoption of the courseware. The study findings should be helpful to inform the further micro-modules development and strategic planning in blending learning scheme at the Faculty and University level.

Our team will also write up a reflection by the end, of course, noting the change of class involvement in the presence and absence of teaching courseware, receiving feedback during course term. At the end of the evaluation, our team, therefore, analysis whether this project can achieve our objective successfully or not.

4. Dissemination Activities (reports, websites, video links, products, *etc.*)

In teaching the lecture of laboratory safety in the radiation sources of SBMS 2105 Techniques in Biomedical Research, high-quality teaching materials and platform limited. There is an urge to develop the tailor-made courseware for both teachers and students. As the VHand has been built-up, it will be disseminated in the second term of the academic year 2108-19. Moreover, our team will perform the trial run to the year 2 students. Referring the video link (https://gocuhk-my.sharepoint.com/:v:/r/personal/florencetang_cuhk_edu_hk/Documents/VHand%20Project.mp4?csf=1&e=z5GSL2), our team has confident to made VHand offering substantial benefits in biomedical science education not only by facilitating constructive learning activities but also by supporting different types of learners especially those who are visually oriented.