THE CHINESE UNIVERSITY OF HONG KONG

Micro-Module Courseware Development Grant

Scheme 1: Basic Scheme

<u>Final Report (2017-18)</u>

Report due 31 October 2018

Please return by email to The Ad hoc Committee on Planning of eLearning Infrastructure <u>mmcd@cuhk.edu.hk</u>

<u>PART I</u>

Project title:　Micro-modules for interactive learning and flipped classroom learning of physiology

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Co-supervisor(s) Dr Sally WS Lo, Dr Fiona WK Tang

Department / Unit The Nethersole School of Nursing

Project duration:　　From December 2017 to October 2018

Date report submitted: October 31, 2018

1. Project objectives

This project is on track to meet all the objectives which the contents delivered in each micro-module are aligning with human physiology courses. The objectives have not been changed as a result of the experience of working on this MMCD project.

2. Process, outcomes or deliverables

In this project, we provide total four micro-modules and the students from the courses on Physiology NURS1603 - Year 2 of Bachelor of Nursing & Physiology I NURS6209 - Year 1 of Master of Nursing Science [Pre-registration] are our target groups. The list of all four micro-modules are as follows:

1. Properties of voltage gated sodium channels.
2. Role of helper T cell in innate and adaptive immunity.
3. Sensory perception.
4. Physiology of impaired heart function with ion imbalance.

Each micro-module is broadcasted about 4-6 minutes and the total duration for all four videos will be approximately about 20-30 minutes.

The style of each micro-module is produced in the format of animated presentation with annotation and narration and applied in the flipped classroom learning and post-lecture learning material to attract the student's interests.

The nature of the deliverables has not been changed at all and we provide some tailor-made and interactive micro-modules for explaining the complicated concepts of human physiology and showing how the knowledge can be applied in some clinical examples in order to equip our nursing students in pathology, nursing care, health care and layout the care planning based on the physiological changes of patients in future.

The timeline of the project development meets our proposed schedules perfectly and only a few of minor changes in the proposed budget plan in order to input more animations and content for the detailed explanations of physiological knowledge.

Overall this project was completed satisfactorily.

3. Evaluation Plan

The micro-modules were evaluated mainly by the scores in each interactive exercise, the survey and the focus-group interviews. The evaluation was focused on the acceptability of the micro-modules. A quantitative survey has been conducted to evaluate users' satisfaction.

Participants were invited to complete eleven 6-point Likert-type item for assessing their perception of those micro-modules including the clarity, depth and length of the content.

The results of the quantitative survey have demonstrated that they are satisfied with the clarity, depth and length of the content. They believed that those micro-modules are important in facilitating their learning in physiology. Moreover, they appreciated the interactive exercises in each micro-module. Physiology is a core subject in nursing and covers essential yet complex contents. The present micro-modules were helpful to support student learning. We will continue to collect much data from our target students at incoming academic years.

4. Dissemination, diffusion and impact

This project is going to be presented at Teaching and Learning Expo 2018 CUHK and HKU Frontiers in Medical and Health Sciences Education 2018: "Learning in Alliance: Inter-professional Health Education and Practice". Based on the positive feedbacks from our target students, we would like to explore any potential to launch this project in other human physiology courses offered in the Faculty of Medicine CUHK.

PART II

Financial data

Funds available:

Funds awarded from MMCDG $ 53,360

Funds secured from other sources $ 0

(please specify_____)

                 Total: $ 53,360

Expenditure:

Item	Budget as per application	Expenditure	Balance
Storyboard for video clips and courseware - 4 x 10-min. Animation video	$4,500	$4,500	0
Video & Audio Editing for video clips	$18,020	$18,020	0
Assets illustration for Animation Production	$14,800	$14,800	0
Panopto In-Video Quiz Integration	$4,290	$4,290	0
1x Project Poster Design for Local/non-local conference	$5,000	$5,000	0
Coupons for incentives to survey	$5,000	$5,000	0
Coupons for time compensation in focus group interviews	$1,750	$1,750	0
Total:	$53,360	$53,360	0

PART III

Lessons learnt from the project

Our students appreciated our team to produce all innovative and interactive micro-modules to describe and explain the mechanisms of normal body functions, human responses and

adaptations to either internal and external changes which are important in the nursing curriculum.

Key success factors in this project:
1. A team of experts in nursing education and information technology colleagues.
2. User-friendly interface of micro-modules and easy-to-access platform of this elearning project.

Difficulties encountered:
1. Only some minor changes of the proposed budget plan were needed because we would like to provide more comprehensive contents on the animations.

Suggestions to CUHK:
1. The duration (only 10 months) is the main limitation of further development of this elearning project and we expect if there is any extension of MMCD project completion timeline up to 1 year.
2. It would be better if the project budget can be double (i.e. $200,000).

PART IV

Information for public access

1. Keywords

(Most relevant)   Keyword 1: action potential

Keyword 2: immunity

Keyword 3: ion channel

Keyword 4: cardiac myocyte

(Least relevant)   Keyword 5: damage

2. Summary

Please provide information, if any, in the following tables, and provide the details in Part I.

Table 1: Publicly accessible online resources (if any)
(a) **Project website:**   *NA.*
(b) **Webpage(s):**   *NA.*
(c) **Tools / Services:**   *NA.*

(d) **Pedagogical Uses:** The micro-modules and the student feedbacks will be continuously launched and collected in next further academic years.	
(c) **Others (please specify):**	

Table 2: Resources accessible to a target group of students (if any)	
If resources (e.g. software) have been developed for a target group of students (e.g. in a course, in a department) to gain access through specific platforms (e.g. Blackboard, facebook), please specify.	

Course Code/ Target Students	Term & Year of offering	Approximate No. of students	Platform
• NURS1603 for Year 2 students in Bachelor of Nursing (BN); • NURS6207, 6208 in Master of Nursing [Pre-registration] (MNSP)	• 1st term in BN in 2018 • 1st and 2nd term in MNSP	• ~ 200 in BN • ~80 in MNSP	Blackboard

Table 3: Presentation (if any)	
Please classify each of the (oral/poster) presentations into one and only one of the following categories	**Number**
(a) In workshop/retreat within your unit (e.g. department, faculty)	*NA*
(b) In workshop/retreat organized for CUHK teachers (e.g. CLEAR workshop, workshop organized by other CUHK units)	*NA*
(c) In CUHK ExPo jointly organized by CLEAR and ITSC	*1*
(d) In any other event held in HK (e.g. UGC symposium, talks delivered to units of other institutions)	*1*
(e) In international conference	*NA*
(f) Others (please specify)	*NA*

Table 4: Publication (if any)	
Please classify each piece of publication into one and only one of the following categories	**Number**
(a) Project CD/DVD	*NA*
(b) Project leaflet	*NA*
(c) Project booklet	*NA*

(d) A section/chapter in a booklet/ book distributed to a limited group of audience	*NA*
(e) Conference proceeding	*NA*
(f) A chapter in a book accessible internationally	*NA*
(g) A paper in a referred journal	*NA*
(h) Others (please specify)	*NA*

3. A one-page brief write up

In the nursing curriculum, our students need to study physiology for understanding the mechanisms of normal body function and the human response and adaptation to either internal and external changes.

Indeed, being equipped with the physiological knowledge will help our students to study pathology, nursing care, health care and layout the care planning based on the physiological changes of patients.

However, current eLearning materials have not been available commercially. This project aims to develop tailor-made micro-modules for explaining the complicated concepts and showing how the knowledge can be applied in some clinical examples.

Four micro-modules were produced in the format of animated presentation with annotation and narration and applied in the flipped classroom learning and post-lecture learning material. The micro-modules were evaluated mainly by the scores in each interactive exercise, the survey and the focus-group interviews. The evaluation was focused on the acceptability of the micro-modules.

A quantitative survey has been conducted to evaluate users' satisfaction. Participants were invited to complete eleven 6-point Likert-type item for assessing their perception of those micro-modules including the clarity, depth and length of the content.

The results of the quantitative survey have demonstrated that they are satisfied with the clarity, depth and length of the content. They believed that those micro-modules are important in facilitating their learning in physiology.

Moreover, they appreciated the interactive exercises in each micro-module. Physiology is a core subject in nursing and covers essential yet complex contents. The present micro-modules were helpful to support student learning.

We expect that those micro-modules can also be used by other courses offered in the Faculty of Medicine at The Chinese University of Hong Kong.