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: Animated Clinical Cases and E-learning Scenarios for Students (ACCESS)

Principal supervisor: Lee Wing Yan, Vivian

Co-supervisor(s):

Department / Unit: School of Pharmacy

Project duration: From December 2017 to October 2018

Date report submitted: 31 October 2018

1. Project objectives

Is the project on track to meet its objectives?
Have the objectives been changed as a result of the experience of working on your MMCDG project?

The project meets its main objectives partly that we have successfully produced 8 animations covering the topics concerned by students when they are handling a clinical case. However we could only produce 8 micro-modules instead of 12. It is because we could not hire a suitable full time staff for the content development. The present contents are developed by part-time colleagues. We expected to complete the remaining 4 micro-modules before the start of PHAR3812, which will have class in spring semester.

2. Process, outcomes or deliverables

Please specify the number of micro modules produced, and the course(s) (with course codes and titles) that have used the micro modules in Part IV, and provide more detailed descriptions here. Must specify duration of each micro-modules (in terms of students online contact hours), total duration time of all deliverables and style. (With reference to the "Summary of video presentation styles" developed by CLEAR)
Has the nature of the deliverables been changed?
Have you adjusted your timeline?
Overall, was the project completed satisfactorily?

A total of 8 micro modules were produced for PHAR 3812 that aim to assist students on understanding a clinical case. The areas covered include (1) Introduction of a case, (2) Laboratory data interpretation and (3) Assessment of a clinical case.

A. Introduction of a case
- a. Basic Components of case handout (1) 2:31
  The purpose of using SOAP format in clinical case handout was explained. The components in subjective and objective are introduced.
- b. Basic Components of case handout (2) 2:17
  The later part of the SOAP format: assessment and plan, is introduced. The content involved in these two parts is explained. The overall structure of a general case handout is introduced.

B. Laboratory data interpretation
- a. Blood Panel (1) 2:07
  The use of blood panel in clinical setting is introduced. The values related to red blood cell and their abbreviations are introduced.
- b. Blood Panel (2) 1:23
  The values related to blood platelet, white blood cell and their abbreviations are introduced. The three commonly used coagulation tests are introduced.
- c. Common Measurement Related to Renal Function (1) 2:36
  Methods and biomarkers used to measure renal function are introduced. The advantages and limitations for each of them are explained.
- d. Common Measurement Related to Renal Function (2) 1:56
  The most commonly used equations estimating renal function are introduced. The calculations and their limitations are explained.

C. Assessment of a clinical case
- a. Dosing Adjustment for Renal Impairment (1)
  Reasons of dosing adjustment in patients with renal diseases are explained. The basic concept and consideration of renal dose adjustment are introduced.
- b. Dosing Adjustment for Renal Impairment (2)
  Examples of drugs that require dose adjustment in patients with renal diseases are discussed. The limitation of drug reference is also explained.

The timeline is delayed but the deliverables can be completed before the launch of PHAR3812 in the coming spring semester 2019.

3. Evaluation Plan

Questionnaires were given to evaluate students' perception on the micro-module effectiveness. They were asked about their learning experience and usefulness of the micro-modules. The result is shown below.

Question	Pre test	Post test
	Agree or above	Agree or above
Learning Experience		
1 Animation case studies can enhance my interest in learning certain disease topics.	84.6%	84.6%
2 Animation supports authentic learning.	84.6%	84.6%
3 Animation allows me to experience clinical cases which would be impossible to generate in normal classroom environments.	84.6%	76.9%
4 Animation develops an immersive learning experience.	76.9%	84.6%
5 I enjoy using animation as a learning tool.	69.2%	92.3%
Usefulness		
6 I think animation can help me interpret clinical notes.	84.6%	76.9%
7 I think animation can help me understand common abbreviations in case handout.	92.3%	92.3%
8 I think animation can help me interpret certain laboratory results.	69.2%	84.6%
9 I think animation can help me improve my interpretation skill on the medication usage to patients.	84.6%	84.6%
10 Generally speaking, I think animation can help me understand a clinical case and helpful for my clinical attachment.	76.9%	84.6%

The questionnaire revealed that students' satisfaction after watching the micro-modules is similar to their expectation before watching them. The most agreed statements are "I enjoy using animation as a learning tool" and "I think animation can help me understand common abbreviations in case handout."

Focus-group interview was conducted to collect feedbacks from students. Some of the key comments are listed below:

"I believe that it will be a nice way for year 2 or even year 3 students to learn those topics online and have a general understanding before they attend the corresponding lectures or going to the ward. It delivers its message in a somewhat fun way, and is short enough to catch our attention without being distracted."

"More difficult content can be considered to be covered by the animations."

"It can be a supplementary material, but definitely not the mainstay."

Students were generally satisfy and enjoyable in using animation to assist their learning, but they believed that animation can be better utilized to explain more in-depth knowledge.

4. Dissemination, diffusion and impact

Kindly see the links below:

1) Case handout (1) :
   https://youtu.be/vPPti3SoSjc
2) Case handout (2) :
   https://youtu.be/AX25jWecnOQ
3) Blood Panel (1) :
   https://youtu.be/CHpPYkIFFDA
4) Blood Panel (2) :
   https://youtu.be/9cxEsBdV-iI
5) Renal function (1) :
   https://youtu.be/YqiJcifUBM8
6) Renal function (2) :
   https://youtu.be/EJRAlR2M7o0
7) Dosing adjustment for renal impairment (1) :
   https://youtu.be/YqiJcifUBM8
8) Dosing adjustment for renal impairment (2) :
   https://youtu.be/EJRAlR2M7o0

PART II
Financial data

Funds available:

Funds awarded from MMCDG	$ 100,000
Funds secured from other sources (please specify_____)	$
Total:	$ 100,000

Expenditure:

Item	Budget as per application	Expenditure	Balance
Research assistant (#1)	90,000	95,736	-5,736
GoAnimate subscription (Software)	7,500	7,966	-466
Printing toner	2,000	3445	-1445
Printing paper	500	500	0
Total:			-7647

PART III

Lessons learnt from the project

Hiring a suitable person was difficult. Even a short animation would take a long time to produce as it involved much artwork and illustration in addition to content development. Despite the difficulties, short animation seemed to be a good learning tools for students to understand difficult concepts. We would further explore the topics that students may want to learn through animation.

PART IV
Information for public access

Summary information and brief write-ups of individual projects will be uploaded to a publicly accessible CUHK MMCDG website. Please extract from Part I the relevant information to facilitate the compilation of the publicly accessible website and reports.

1. Keywords

Please provide five keywords (in the order of most relevant to your project to least relevant) to describe your micro-modules/pedagogies adopted.

(Most relevant)   Keyword 1: Pharmacy education

Keyword 2: Clinical case

Keyword 3: Animation

Keyword 4: Case assessment

(Least relevant)   Keyword 5: Laboratory test interpretation

2. Summary

Please provide information, if any, in the following tables, <u>and provide the details in Part I</u>.

Table 1: Publicly accessible online resources (if any)
(a) **Project website:**
If a publicly accessible project website has been constructed, please provide the URL.
They will be uploaded to Blackboard. YouTube links for preview are provided in Part I.
(b) **Webpage(s):**
If information of your project is summarized in a webpage (say a page in the department's or faculty's website), please provide the URL(s) here.

(c) **Tools / Services:** *If you have used any tools or services for the project, please provide names of the tools or services in here.* Vyond	
(d) **Pedagogical Uses:** *If any flipped classroom activities have been conducted, please provide information in here. If relevant, please indicate how your project output can be used to support flipped classroom activities.*	
(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
PHAR3812	*2nd term 2018/19*	*50*	*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)	-
(b) In workshop/retreat organized for CUHK teachers (e.g. CLEAR workshop, workshop organized by other CUHK units)	-
(c) In CUHK ExPo jointly organized by CLEAR and ITSC	1 (In preparation)
(d) In any other event held in HK (e.g. UGC symposium, talks delivered to units of other institutions)	-
(e) In international conference	1 (In preparation)
(f) Others (please specify)	-

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	-
(b) Project leaflet	-
(c) Project booklet	-
(d) A section/chapter in a booklet/ book distributed to a limited group of audience	-
(e) Conference proceeding	1 (In preparation)
(f) A chapter in a book accessible internationally	-
(g) A paper in a referred journal	-
(h) Others (please specify)	-

3. A one-page brief write up

Please provide a one-page brief write-up of no more than 500 words and a short video.

Students often face difficulties when they first attend pharmacy ward rounds during their study. They are not familiar with clinical case handout and the abbreviations on the patient Kardex. In view of this, the micro-modules developed under this project aims to help student handle clinical cases, interpret clinical notes and assess the cases. We focus on three areas in this set of micro-modules, including (1) the introduction of a case, (2) laboratory data interpretation and (3) assessment of a case. We have developed 8 animated videos under these three areas. These videos are intended to be used in PHAR3812, which is a course focusing on the clinical assessment and monitoring. These videos can better equip our students to prepare for their clinical ward rounds in addition to the single 3-hour lecture. The objectives are to (1) explain the basic information of a case handout, (2) discuss the interpretation of various laboratory data, and (3) how to assess a clinical case. These are the situations which students often encounter difficulties during case assessment.

The micro-modules are developed for students of PHAR3812, which only have classes in spring semester. We have invited the students who had just completed PHAR3812 to watch the videos and provide feedbacks in a focus-group interview. Students were generally satisfy and enjoyable in using animation to assist their learning, but they did not think these videos can replace the original lectures. They commented that more in-depth knowledge could be covered in the micro-modules, and to analyze some complicated terms and clinical cases through animation, a tool that could help visualize abstract concepts. In addition, the pre-post questionnaire results showed that students found the micro-modules were enjoyable to watch, and enhanced their understandings on clinical case handout. These feedbacks and comments from students are valuable for our micro-module preparation. We would further refine our micro-modules and will make them available in the upcoming PHAR3812 course.