

THE CHINESE UNIVERSITY OF HONG KONG

Micro-Module Courseware Development Grant

Scheme 1: Basic Scheme

Final Report (2017-18)

Report due 31 October 2018

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

PART I

Project title: Guided-Responsive Approach to the Learning (GRALe) of Integrated Cardiovascular Physiology Concepts

Principal supervisor: Dr Willmann Liang

Co-supervisor(s): Nil

Department / Unit: School of Biomedical Sciences

Project duration: From December 2017 to October 2018

Date report submitted: 31 Oct 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 objective of the project is to enhance student understanding of the cardiovascular responses involved in compensating for three selected situations, namely standing, dynamic exercise & haemorrhage.

The project outcome meets the objective as originally proposed.

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?

Three micro-modules, each corresponding to a specific situation, namely “Standing” (5 minutes of usage time), “Dynamic Exercise” (7 minutes of usage time), and “Haemorrhage” (8 minutes of usage time), were produced. These modules were launched for student use in MEDU2400 for Year 2 medical students in Term 1 of the 2018-19 academic year. In each module, the student user is guided through the various steps involved in the cardiovascular responses to help the body to compensate for the disturbances that have occurred in the particular situation. At each step, a question is asked and the user needs to answer with the correct cardiovascular response before moving on. When in doubt, the user also has the option to read the hints provided within the micro-module. Once progressed through the numerous steps, the user is presented with a summary diagram, illustrating the different components in the cardiovascular system that participate in the compensatory responses. The user is shown in colour-coded symbols indicating whether s/he had previously answered the questions correctly or not. The user also has the opportunity to revisit any of the questions earlier, especially those that were answered incorrectly, for further revision of the concepts. In the initial proposal, a narrated clip was planned, aiming to lead the user through the summary diagram. This was not possible due to insufficient time.

3. Evaluation Plan

Have you altered your evaluation plans?

What monitoring data did you collect?

Does your evaluation indicate that you have achieved your objectives?

In the original plan, evaluation included user focus group interviews, user surveys, and correlation analysis with student performances in summative assessments (Term 1 & year-end examinations). The development of the 3 prototype micro-modules were completed in May 2018. Minor amendments to the text and graphics as well as bug fixes were made by the end of July 2018. With the project budget deadline brought forward to the end of August 2018, this left insufficient time to recruit users for focus groups. Instead, the 3 micro-modules were launched on Blackboard in early Sep 2018 for access by 236 year 2 medical students. The students were reminded at numerous occasions to attempt these micro-modules before the relevant lecture on 18 Sep 2018. Before the conclusion of the lecture on 18 Sep 2018, students were reminded again to attempt the micro-modules. Usage data (shown below) were obtained from Blackboard both “pre-lecture” and “post-lecture (until 23 Oct 2018, after the final lecture of the cardiovascular block and at the time of report preparation).

Pre-lecture usage (no. of students)	Post-lecture usage (until 23 Oct 2018) (no. of students)
36	15

Note: In total, 48 unique students (out of possible 236 students) attempted the micro-modules. 3 students attempted the micro-modules both “pre-lecture” & “post-lecture”.

Since the project end date fell before the Term 1 examination, correlation analysis could not be performed yet. However, student feedback was collected in the form of surveys from those present in the 23 Oct 2018 lecture. In total, 57 completed surveys were collected. The results on usage habits are as follows.

	No. of students
Students who have not used the micro-modules	19
Students who used the micro-modules “pre-lecture” only.	11
Students who used the micro-modules “post-lecture” only.	20
Students who have used the micro-modules both “pre-lecture” & “post-lecture”.	7

Note: 38 unique students attempted the micro-modules were present in the lecture.

Responses to the statement:	No. of students		
	Neutral	Somewhat agree	Strongly agree
“The module on “Standing” enhances your understanding of the lecture contents.”	3	22	13
“The module on “Dynamic exercise” enhances your understanding of the lecture contents.”	3	19	13
“The module on “Haemorrhage” enhances your understanding of the lecture contents.”	4	18	11

Note: Response was not indicated to some of the statements, thus not all row totals tallied up to 38.

Interestingly, although not too surprising, the number of students who indicated having attempted the micro-modules did not match the data from Blackboard. Despite being the most direct method, conducting a survey may not be the most reliable way in obtaining student feedback.

4. Dissemination, diffusion and impact

Please provide examples of dissemination: website, presentations in workshops or conferences, or publications.

Please provide examples of diffusion: how the project results/process/outcomes/deliverables have been used in your unit and other parts of CUHK or other institutions?

Please provide examples of impact: how the project results (micro modules) can be adapted to other disciplines.

The 3 micro-modules are available on the MEDU2400 Blackboard course site:

https://blackboard.cuhk.edu.hk/webapps/scor-scormengine-BB593a61e7aa84f/delivery?action=launchPackage&course_id=108256_1&content_id=2593573_1

https://blackboard.cuhk.edu.hk/webapps/scor-scormengine-BB593a61e7aa84f/delivery?action=launchPackage&course_id=108256_1&content_id=2593574_1

https://blackboard.cuhk.edu.hk/webapps/scor-scormengine-BB593a61e7aa84f/delivery?action=launchPackage&course_id=108256_1&content_id=2593575_1

PART II

Financial data

Funds available:

Funds awarded from MMCDG	\$ 81,400
Funds secured from other sources (please specify _____)	\$ 0
Total:	\$ 81,400

Expenditure:

Item	Budget as per application	Expenditure	Balance
ITSC services	41,400	41,400	0
Teaching relief ¹	30,000	0	30,000
Student helpers ²	10,000	0	10,000
Total:	81,400	41,400	40,000

¹ I was advised that teaching relief was not standard practice for my terms of employment.

² Student helpers primarily to take part in focus group studies were not recruited due to early budget cut-off of the project.

PART III

Lessons learnt from the project

Please describe your way forward.

Please describe any of the following item(s) accordingly:

- *Key success factors, if any*
- *Difficulties encountered and remedial actions taken, if any*
- *The role of other units in providing support, if any*

- *Suggestions to CUHK, if any*
 - *Example: what should be done differently?*

Once more data become available later in the academic year, more accurate indication of student usage and their performance in the micro-modules will be obtained. These results may be compared to examination results at the end of Term 1 & Term 2.

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: Cardiovascular physiology

Keyword 2: Standing

Keyword 3: Dynamic exercise

Keyword 4: Haemorrhage

(Least relevant) Keyword 5:

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)
<p>(a) Project website:</p> <p><i>If a publicly accessible project website has been constructed, please provide the URL.</i></p>
<p>(b) Webpage(s):</p> <p><i>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.</i></p>
<p>(c) Tools / Services:</p> <p><i>If you have used any tools or services for the project, please provide names of the tools or services in here.</i></p>

(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.

<u>Course Code/ Target Students</u>	<u>Term & Year of offering</u>	<u>Approximate No. of students</u>	<u>Platform</u>
MEDU2400	2018-19	236	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)	0
(b) In workshop/retreat organized for CUHK teachers (e.g. CLEAR workshop, workshop organized by other CUHK units)	0
(c) In CUHK ExPo jointly organized by CLEAR and ITSC	0
(d) In any other event held in HK (e.g. UGC symposium, talks delivered to units of other institutions)	0
(e) In international conference	0
(f) Others (please specify)	0

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	0
(b) Project leaflet	0
(c) Project booklet	0

(d) A section/chapter in a booklet/ book distributed to a limited group of audience	0
(e) Conference proceeding	0
(f) A chapter in a book accessible internationally	0
(g) A paper in a referred journal	0
(h) Others (please specify)	0

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.

Three micro-modules, each corresponding to a specific situation, namely “Standing”, “Dynamic Exercise”, and “Haemorrhage” were produced. These modules were launched for student use in Term 1 of the 2018-19 academic year. In each module, the student user is guided through the various steps involved in the cardiovascular responses to help the body to compensate for the disturbances that have occurred in the particular situation. At each step, a question is asked and the user needs to answer with the correct cardiovascular response before moving on. When in doubt, the user also has the option to read the hints provided within the micro-module. Once progressed through the numerous steps, the user is presented with a summary diagram, illustrating the different components in the cardiovascular system that participate in the compensatory responses. The user is shown in colour-coded symbols indicating whether s/he had previously answered the questions correctly or not. The user also has the opportunity to revisit any of the questions earlier, especially those that were answered incorrectly, for further revision of the concepts.