

THE CHINESE UNIVERSITY OF HONG KONG

Micro-Module Courseware Development Grant

Scheme 1: Basic Scheme

Final Report (2017-18) (Additional Call)

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: Micro-modules for Integrated Learning: Utilizing a Virtual Pharmacy Platform to build Students' Knowledge Base

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Project duration: From March 2018 to October 2018

Date report submitted: 31 October 2018

1. Project objectives

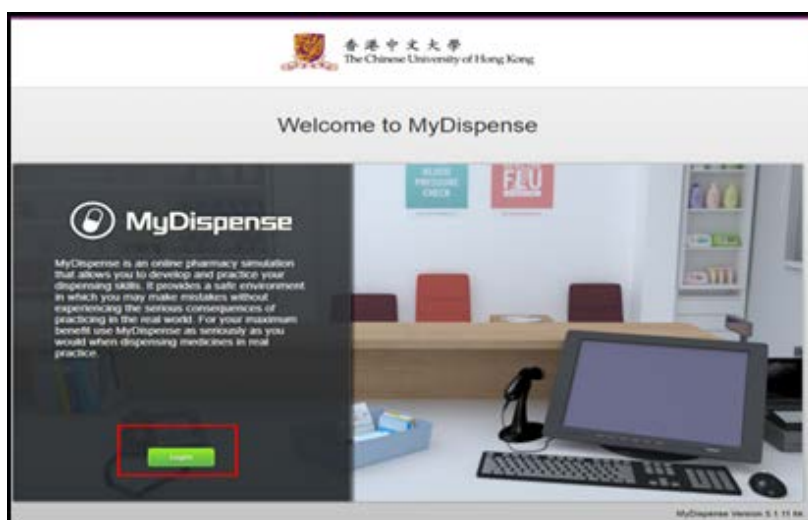
Dispensing medications to patients involve multiple steps and thinking processes. Ensuring medication safety in the dispensing process requires practice. We developed this project to:

1. Develop interactive modules for use in a virtual pharmacy platform (MyDispense CUHK)
2. Demonstrate integration of knowledge
3. Enable more classroom time for case discussions
4. Internationalize the students' learning by adopting resources used in overseas countries

We have met objectives for the project. MyDispense CUHK- the virtual pharmacy was launched this year and has been introduced it to students in the school year 2018-2019.

2. Process, outcomes or deliverables

Our team collaborated with Monash University to develop a CUHK version of the virtual pharmacy learning resource available in overseas pharmacy schools. The CUHK version was tailored to contain information more reflective of the Hong Kong such as local patient names, prescriber names and medications. MyDispense CUHK may be accessed through Blackboard, with access linked to the students' CUHK account to create a closed-loop learning environment.



The project piloted **30** practice exercises. A description of these exercises as well as the corresponding year and course applicable are below:

Course code: Phar 2313 Principles of Pharmaceutical Dispensing (Year 2)

Module	Topic	Description	Duration (minutes)
1	Oral Formulations	Tablet-1 (Amlodipine)	~8
		Tablet-2 (Sertraline)	~10
		Tablet-3 (Thyroxine)	~12
		Tablet-4 (Simvastatin)	~12
		Sublingual Tablet (DDAVP)	~15
		Capsule (Celecoxib)	~8
		Modified Release Tablet (Slow-K)	~10
		Syrup (Ranitidine)	~10
		Suspension (Clarithromycin)	~20
		Mouthwash (Chlorhexidine)	~10
2	Topical Formulations	Ointment (Mupirocin)	~8

		Cream (Hydrocortisone)	~8
		Eye drops (Systane Ultra)	~10
		Ear drops (Sofradex)	~10
		Transdermal Patches (Hyoscine)	~20
3	Misc. Formulations	Inhaler-1 (Beclometasone)	~10
		Inhaler-2 (Salbutamol)	~20
		Nasal Inhaler (Fluticasone)	~20
		Enema (Fleet)	~8
		Suppository (Bisacodyl)	~15
4	Additional Exercises	Suspension (Cefuroxime)	~12
		Tablets- 2 concurrent medications	~12
		Eye drops- 3 concurrent medications	~25

Course code: Phar 3414 Pharmacology and Therapeutics (Year 3)

Module	Topic	Description	Duration
1	Psychiatric Medications	Dose Reduction (Sertraline)	~20
		Adverse Effects (Citalopram)	~20
		Anxiety (Alprazolam)	~15
		Sleep Disorder (Zopiclone)	~15
2	Seizure Medications	Outpatient Management (Diazepam)	~30
		Discontinuation of Therapy (Phenytoin)	~20

The nature of the deliverables have not changed and the project was completed more than satisfactorily and we were able to create additional exercises for the students to practice.

3. Evaluation Plan

Our evaluation plan included piloting the exercises to students over the summer. Students were asked to perform the exercises and provide feedback on the following 3 aspects of the virtual pharmacy:

1. Learning the dispensing program and familiarizing with the various functions of the virtual pharmacy
2. Time spent on each exercise
3. Benefits of the project towards their learning

Based on the students' feedback, we developed a survey to evaluate the project formally after implementation in Term 1, School Year 2018-2019. Evaluation of the students' performance and their feedback of those enrolled in Phar 2313 will be collected in end of November 2018

while those for Phar 3414 will be collected in April 2019.

4. Dissemination, diffusion and impact

Dissemination:

MyDispense CUHK may be accessed through the following website:

<http://mydispense.pharmacy.cuhk.edu.hk>

We plan to present the project in the upcoming Teaching & Learning Expo 2018 and future pharmacy education conferences.

Diffusion:

The exercises we created may also be shared with other overseas pharmacy institutions using a similar platform.

Impact:

Creating virtual environments reflective of future practice settings is useful for students to learn and practice the application of knowledge and critical thinking. A similar type of project may be considered among other disciplines or courses whose students require to demonstrate multi-step performance based tasks

PART II

Financial data

Funds available:

Funds awarded from MMCDG	\$ 72,648
Funds secured from other sources (please specify _____)	\$ 0
Total:	\$ 72,648

Expenditure:

Item	Budget as per application	Expenditure	Balance
Staff Cost (Part-Time Research Assistant	\$ 52,128	\$ 45,218	+ \$6,910
ITSC	\$ 6,840	\$ 10,620	-\$3,780
Student Helper	\$ 6,600	\$ 2,512.14 (pending full amt)	+ 4,087.86
Office Supplies	\$ 1,280	\$ 1,280	0
Sample Medications	\$4,000	0	\$4,000
Total:	\$ 72, 648	\$59,630.14	\$13,017.61

PART III

Lessons learnt from the project

Our future plan is to incorporate more exercises in the virtual pharmacy for more students to practice their dispensing skills. We also plan to extend the platform to other courses within the curriculum so students can integrate their knowledge further.

A key success factor for this project is working as a team. Team members from within the School of Pharmacy, CLEAR and the Teaching and Learning Unit of the School of Biomedical Sciences really provided different points of view that added to the direction of the project, the quality of the exercises and the project evaluation parameters. Furthermore, having additional part-time colleagues currently working in a Hong Kong pharmacy enabled us to have manpower help and also build cases reflective of Hong Kong pharmacy practice.

Several difficulties were encountered during the project. The first was being familiar with the system. To be able to build cases into MyDispense CUHK, we first had to learn how to use the system and understand how to fully maximize its impact on learning. Often we had to rely on our overseas colleagues for help fixing some of the problems encountered.

The second difficulty was the estimation of financial resources. During the initial application, we had overestimated the hourly wage of our part-time colleague. Furthermore, we estimated students would take longer to use the system resulting in an overestimation of student helper hours. Although it was good to know that students were much quicker in learning the system and were able to go through the exercises faster than we thought, both of these factors resulted in some leftover in portion of our funds.

PART IV

Information for public access

1. Keywords

- (Most relevant) Keyword 1: Virtual Learning Environment
 Keyword 2: Self-paced learning
 Keyword 3: Individualized feedback
 Keyword 4: Vertical Integration of knowledge
- (Least relevant) Keyword 5: Inter-university and international collaboration

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:***http://mydispense.pharmacy.cuhk.edu.hk***(b) Webpage(s):**

NA

(c) Tools / Services:

NA

(d) Pedagogical Uses:

The project is able to support flipped classroom learning, may be used for students' assessment.

(c) Others (please specify):**Table 2: Resources accessible to a target group of students (if any)**

<u>Course Code/ Target Students</u>	<u>Term & Year of offering</u>	<u>Approximate No. of students</u>	<u>Platform</u>
<i>Phar 2313</i>	<i>1st term 2018-2019</i>	<i>30</i>	<i>Blackboard</i>
<i>Phar 3414</i>	<i>2nd term 2018-2019</i>	<i>58</i>	<i>Blackboard</i>

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*Submitted for T&L Expo 2018***(d)** In any other event held in HK (e.g. UGC symposium, talks delivered to units of other institutions)

NA

(e) In international conference

NA

(f) Others (please specify)

NA

Table 4: Publication (if any)	
<i>Please classify each piece of publication into one and only one of the following categories</i>	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

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

Our project was to implement a CUHK version of a virtual pharmacy- MyDispense-currently available in overseas institutions. This virtual pharmacy allows students to practice interpreting, evaluating and performing dispensing practices in a safe environment. Working with our overseas partner institution, we developed a Hong Kong version for CUHK students. The objectives of the project were to develop interactive eLearning exercises (reflective of actual prescriptions), demonstrate integration of knowledge, internationalize the students' learning and enable more classroom time for discussions.

To demonstrate interactive learning, each case requires students to perform tasks necessary when dispensing a prescription. The exercises were implemented across Yr 2 and Yr 3 pharmacy courses to illustrate vertical integration of knowledge learned throughout the pharmacy curriculum. The cases allowed students to assess their knowledge via the feedback provided. Students may then discuss the cases with classmates and the teacher during class.

Preliminary feedback from students showed very positive reception of the platform. Students felt that the exercises helped them apply the knowledge learned from lectures and tutorials and to consider more practical and safety issues which improves their readiness to be future pharmacists.

The project has been piloted in Term 1 2018-2019. Evaluation will be conducted in Nov 2018. Future plans include developing more cases within each topic for students to practice on and to integrate this eLearning platform across other courses within the pharmacy curriculum.