

THE CHINESE UNIVERSITY OF HONG KONG

Micro-Module Courseware Development Grant

Scheme 1: Basic Scheme

Final Report (2015-16)

PART I

Project title: New Concept for the Micro-modules in Flipped Classroom of the Medical Education: Clinical Skill e-Learning Channel

Principal supervisor: Dr. Florence Tang

Members: Professor David Chung, Professor Tony Mak, Professor Simon Ng, Ms Jenny Fang, Mr. Ray Lee and Dr. Olivia Ngan

Department / Unit: School of Biomedical Sciences

Project duration: From January 2016 to February 2017

Date report submitted: 27 February 2017

1. Project objectives

Our central strategic plan is to enable students to access learning materials in an integrated web-platform with the concept of one-stop service. And thus, this project developed an innovative teaching courseware, eC Skills Channel, bridging the unmet teaching gap of foundational knowledge and clinical skills between pre-clinical and clinical teaching need in medicine curriculum.

Major components of the eC Skills Channel:

- **Design:** the platform was designed with a pull-down navigation for search, which is easy to use
- **Content:** the quality of content was tailored to address student need. Topics that are most commonly diagnosed in the hospital were selected as a pilot study. It composed of illustrations of structures of the anatomy and micro-lectures, a demonstration in taking history and surgical procedures. Students can understand how the importance of the anatomical structure in the application of the clinical skills.
- **Self-paced reflection:** The multi-choice questions have been set up for self-revision.

One of the significance of this project is that the project outcome is also applicable to regular teaching that shares similar topics, which could be reused the teaching material and helped to facilitate face-to-face didactic teaching lectures. We had demonstrated that the design of one-stop service learning style in the eC Skills Channel of the micro-modules would be part of the lead in supporting the University's strategic scheme for encouragement the new era of e-Learning teaching in 21st century.

2. Process, outcomes or deliverables

Two micro-modules were produced. The nature of the deliverables of the eC Skills Channel met our planned schedule and the content of two topics is listed below:

Hernia

- Overview: Groin Hernia
- Common Groin Hernia
 - Male Inguinal Region
 - Micro-lectures
 - Indirect Inguinal Hernia
 - Direct Inguinal Hernia
 - Femoral Inguinal Hernia
- Diagnostic Assessment
 - Physical Examination
- Treatment:
 - Explanation for the Surgery & Surgical procedures
 - Conservative Management
 - Quiz

Haemorrhoids

- Clinical Anatomy of Rectum and Anal Canal
- Digital Rectal Examination
 - Micro-lectures
 - Digital Rectal Examination: Taking History
 - Digital Rectal Examination: How the procedure is performed?
- Surgical Treatments
 - Micro-lectures
 - What are hemorrhoids?
 - Surgery for hemorrhoids
- Surgical Procedures:
 - Open haemorrhoidectomy
 - Doppler Guided Trans-Haemorrhoidal Dearterialisation (THD)
- Quiz

Our project deliverable was for the medical students, especially for the year medical year 3 to 5.

At present, eC Skills Channel is a trial run version and therefore the students were free to access the eC simply on the Blackboard Learn or the temporary ITSC server via VPN (http://137.189.27.142/ec_skills_channel/) whenever students wanted to know some more information about these topics or students wanted to have self-paced reflections.

3. Evaluation Plan

Our development timeline has been adjusted, as our team would like to collect more solid feedback as if the eC Skills Channel on studying clinical skills is an appropriate tool. An anonymous questionnaire survey was conducted among courseware-users via electronic submission.

In total, eighteen questionnaires were completed and returned. Among the respondents, 55.6% were females and 44.4% were males. The distribution of the year of students for the submission was shown in Figure 1.

Figure 1. Year of study among survey respondents

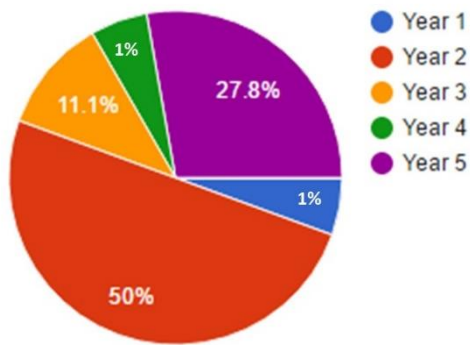


Figure 2 shows perceived usefulness of eC Skills Channel courseware. Overall, students (over 99%) regarded the eC Skills Channel as helpful that facilitated their progress of learning of what they wanted. None of the students who found the eC Skills Channel was not helpful at all.

Figure 2. Perceived usefulness of eC Skills Channel.

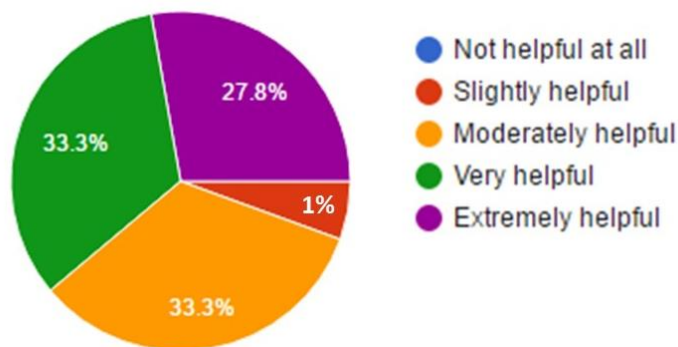
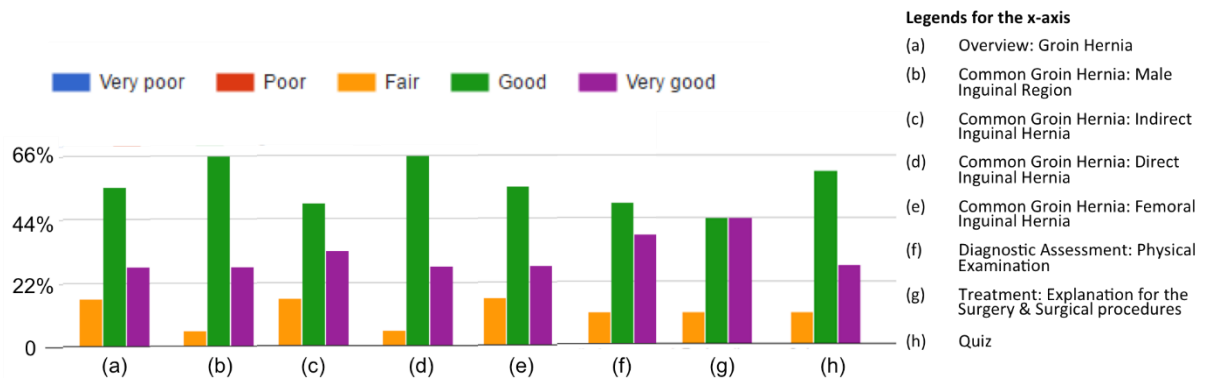


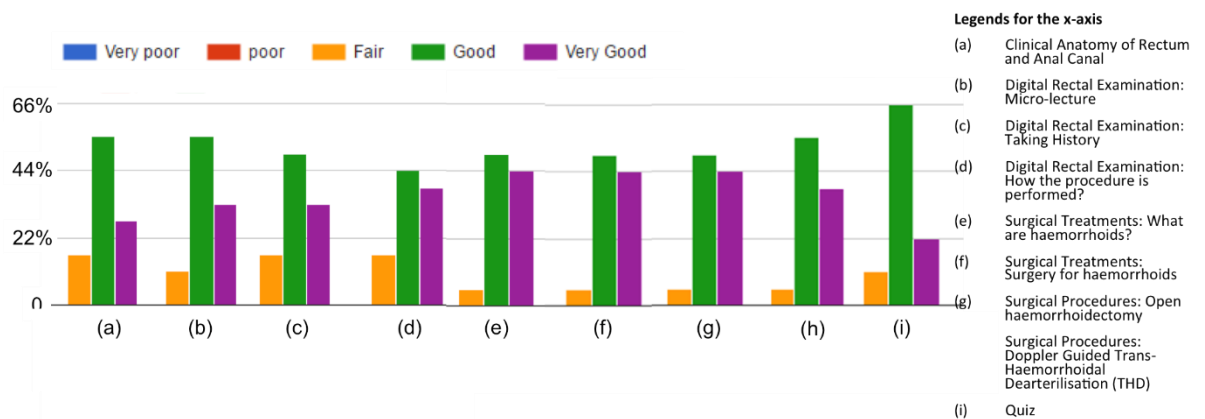
Figure 3A and B show the attitude towards the content of Hernia and Haemorrhoids) in eC Skills Channel. More than two-fifth students agreed found the content and courseware design meet their needs. Figure 4 shows the attitude towards eC Skills Channel courseware and reported positive reinforcement in using the courseware to enhance their learning. About three-fifth respondents agreed that the course content is clearly presented that fits their study needs.

Figure 3 Attitude towards the content of Hernia (A) and Haemorrhoids (B) in eC Skills Channel.

A) Topics of Hernia



B) Topics of Haemorrhoids



The pros and cons opinion of eC Skills Channel were summarized in Table 1. The majority of respondents agreed that components adopted by eC Skills Channel was an effective way to learn the clinical skills and helped reinforce the knowledge gained. They provided positive feedback over the utility of the courseware and content that help facilitate their revision. They also noted the inadequacy of the courseware over the quiz design. Opinion over wider application of courseware were voiced and summarized in Table 2.

Table 1 Opinion towards the eC Skills channel

Pros	Cons
<ul style="list-style-type: none"> • Please make more videos before our Med 5 Final MB. These are really helpful and I wish we had them earlier. Thank you! • Very good job. I'm sure the expansion of such a courseware will be much appreciated by all medical students. • It would be great if more detailed content could be included; it is good for enhancing understanding and learning, • User-friendly and helpful in revision • Concise descriptions and well-made videos are the most attractive parts of the whole website! • This micro-modules helps me a lot to understand some of the confusing points of anatomy 	<ul style="list-style-type: none"> • The quiz needs explanation of answers • I wonder if there will be sufficient time for student to appreciate/ learn from the module or it is just an additional program to increase students' stress level. If there is no adjustment of the usual curriculum, I am quite concerned about the effect of this module • Not that mobile friendly for the menu • More physical examination videos in Cantonese please - these are very helpful!

Table 2 Suggested Topics for Courseware Development

<ul style="list-style-type: none"> • All topics that faculty thinks medical students should know, but not give fragmented information during different lectures or tutorial. Though the faculty encourages students for self-learning, most of the knowledge acquired are frankly fact based and guideline based, which are more suitable by clear provision of information with explanation or discussion of rationale. • All other common short cases for surgery • Other aspects of human anatomy • Skin pathology, lumps and bump • Diseases with complicated/difficult clinical presentations • Disease related to anastomosis of portal vessels and systemic vessels • More complicated topics, e.g. Acid-base disturbance

4. Dissemination, diffusion and impact

In consideration of pedagogy, we set up the good quality of content and the learners regarded eC Skills Channel can facilitate their learning process. The eC Skills Channel is only the preliminary study for demonstration at present and will be implemented as self-paced reflection material of the blended learning. Our team will introduce the eC Skills Channel to others teachers in the Faculty for adoption the new innovated such type of learning style.

PART II

Financial data

Funds available:

Funds awarded from MMCDG	\$ <u>HK\$90,900.00</u>
Funds secured from other sources (please specify _____)	\$ <u>0</u>
 Total:	 \$ <u>HK\$90,900.00</u>

The Appendix I is the summary of the Expenditure for the project. Table 4 showed the proposed budget for our project development.

Table 3 the proposed expenditure of the eC Skills Channel.

	Item	Quantity	Hr(s) <\$165/hr>	Total	Quotations / Competitive bids
a.	Courseware design and website development	30	5	24,750	ITSC
b.	5-10mins animation with audio synchronization	6	15	14,850	ITSC
c.	Illustration	10	5	8,250	ITSC
d.	Photo retouch	10	1	1,650	ITSC
e.	Photo labeling	10	2	3,300	ITSC
f.	Photo taking	1 Job	4	660	ITSC
g.	Quizzes	40	1	6,600	ITSC
h.	Audio recording	1 Job	7	1,155	ITSC
Justification:					
– All the jobs from (a) to (h) have been requested and done from ITSC but not from the CSLC; the sum of the total amount will be charged soon.					
i.	Content editing			3,557.5	

j.	Contract for service (animation)	13,500
k.	Student helper (used \$3602.5)	4,500
l.	Notebook	8,127.5
Justification		
<ul style="list-style-type: none"> - Item (j) and (k) have been finished and payments have been settled. - I still need student helper (item l) to help for the data collection, the payment has not yet been closed. - I would like to propose to buy the notebook (item m) instead of the iPad as it is convenient for the demonstration and presentation of our e-learning platform. 		
Total		\$90,900.00

PART III

Lessons learnt from the project

The use of the eC Skills Channel in the integration of the clinical training should be the appropriate e-learning tool for making a big step in the improvement of students learning in the clinical skills in the clinical curriculum. Our team put the way forward to develop further micro-mouldes in the aim of increasing the attention and focus to new knowledge of clinical skills, motivating critical thinking skills and promoting the clinical skills practice experience among students.

In the era with explosive digital technology that students can surf the internet for information that quality of is uncertain. The Faculty of Medicine launches an initiative called SMART to foster effective learning and teaching among medical students:

Student-Centred Learning;

Mentorship;

Assured Knowledge Acquisition;

Robust Clinical Teaching; and

Teaching of Ethics and Professionalism

In line with this goal, our team may suggest that we, educators, should have the responsibility to provide a user-friendly electronic platform launched by the Faculty. Moreover, students can acquire any sort of the information in their medical curriculum. It is good for the students to understand the 3W, i.e. 'why do we learn this basic knowledge?', 'what is its clinical significance?' and 'when should I apply it for diagnosis and treatment?'

PART IV

Information for public access

The primary aim of the project is to develop an innovative teaching courseware to facilitate your intensive learning of anatomical knowledge and clinical skills in the Medicine curriculum. It centralized animation clips highlighting essential information that you are required to learn before attending classes. We are at the early phase of the project that our team has developed two topics: (1) hernia and (2) hemorrhoids.

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: Micro-modules
 Keyword 2: Clinical Skills
 Keyword 3: Clinical Anatomy
 Keyword 4: Hernia
(Least relevant) Keyword 5: Hemorrhoids

2. Summary

Table 1: Publicly accessible online resources (if any)

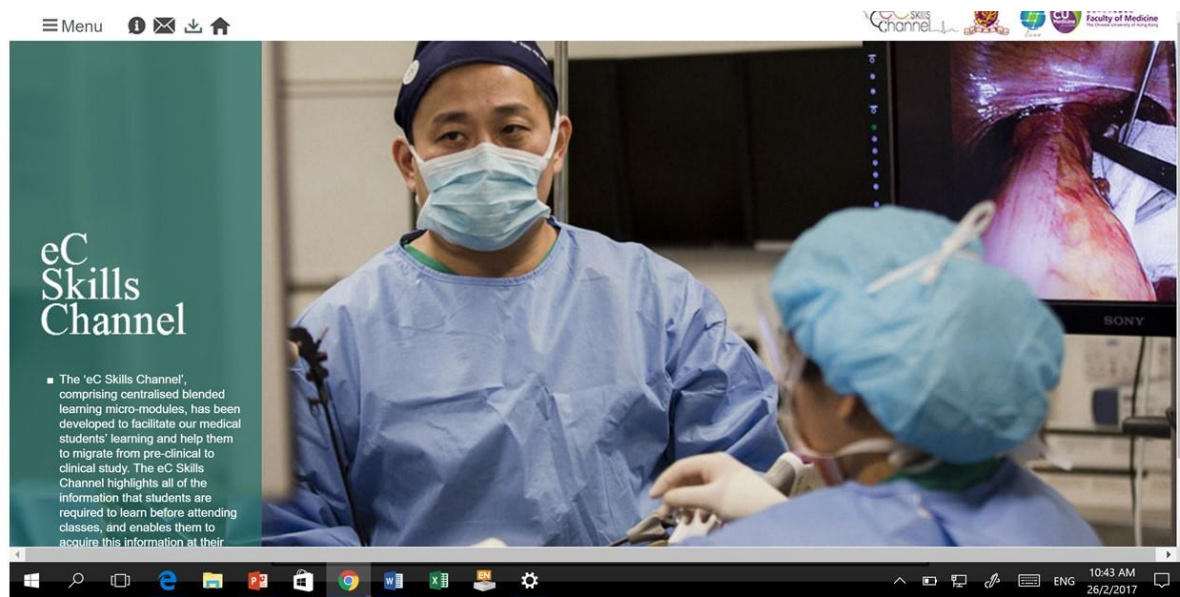
The online resources are for the teachers and students to access.

(a) Project website:

If a publicly accessible project website has been constructed, please provide the URL.

ITSC server via VPN (http://137.189.27.142/ec_skills_channel/)

(b) Webpage(s):



(c) Tools / Services:

For the courseware development tools/service that our team has adapted are listed as follows:

- Adobe Muse to crete the responsive website
- Adobe Animate to create the animations
- The commercial micro-clips (SMART image) to elaborate the clinical significance of hernia and how to perform the surgical procedures of THD.

(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>
MEDU3250	1 st term 2016	250	Blackboard
MEDU1110 MEDU2300	1 st term 2016	250	Blackboard
Med 4 & Med 5	1 st term 2016	500	http://137.189.27.142/ec_skills_channel/ (via VPN)

Table 3: Presentation (if any)

	Number
Please classify each of the (oral/poster) presentations into one and only one of the following categories	
(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 Teaching and Learning Innovation Expo 2016 We had gave a poster presentation on for the <i>title: "A New Concept for the Micro-modules in Medical Education: The eLearning Clinical Skills (eC Skills) Channel"</i> . And, our work received recognition at the podium and got an award for Poster Commendation (Appendix II)	P. 7 & P. 23 on the booklet of the Teaching and Learning Innovation Expo 2016.
(d) In any other event held in HK (e.g. UGC symposium, talks delivered to units of other institutions) Our team will give a oral presentation at Medical Education Conference held by the Chinese University of Hong Kong on 10-11 March, 2017. The title is " <i>The Pilot Study of the Innovated E-</i>	http://www.ome.cuhk.edu.hk/cumec/

<i>learning Platform: Electronic Clinical Skills (eC Skills) Channel for Teaching Clinical Years in Medical Curriculum”.</i>	
(e) In international conference Our team will also give an oral presentation at 12th International Medical Education, (7 - 9 April 2017) at Kuala Lumpur, Malaysia. The title is “ <i>The Pilot Study of the New Innovated e-learning courseware for Medical Students studying in the Clinical Years: Electronic Clinical Skills (eC Skills) Channel</i> ”	http://www.imu.edu.my/imec/
(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	Yes
(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

Under the new medical curriculum, medical year 3 students are required to participate in a three-week workshop called, Clinical Skills Practice of the Bridging Course. It aims to provide a pre-clinical training platform for students to review basic knowledge of gross anatomy, learn clinical skills via the face-to-face lectures, and sharpen clinical skills via hands-on experience. To facilitate active learning in this concentrated workshop, it is of surging demand in developing a blended learning teaching courseware.

Our Faculty is supportive in promoting and integrating eLearning into the curriculum, where plenty of teaching courseware have been successfully developed and launched to the web link platform, including Blackboard Learn or Medical Curriculum System. At present, only a few

topics contents have been covered by available courseware and launched in different web platforms, where materials are not easily accessible to students retrieving teaching materials. The recent availability of the software of Articulate Storyline®, with build-in a one-stop interactive platform, is a great alternative to overcome existing shortcoming. In this project, our team will utilise Articulate Storyline® software to provide a centralised platform, so-called, “Clinical Skill e-Learning Channel”, highlighting all essential information that students should have learned before attending the class at an own study pace.

The proposed project aims to develop a new innovative teaching courseware to fill in the knowledge and technology gap in the bridging course of the Faculty of Medicine curriculum. One of the significance of this project is that the project outcome is also applicable to regular teaching that shares similar topics, which could be reused and help facilitate face-to-face didactic teaching lectures. More importantly, students can access all learning materials in one web platform with the concept of one-stop service.

Our team would like to be part of the lead in supporting the University’s strategic scheme for encouragement the new era of e-Learning teaching in the 21st century. Please take you time to access the eC Skills Channel which has been launched by ITSC server via VPN, http://137.189.27.142/ec_skills_channel/) and watch the short video which deepens your insight for the overall achievement of our project (<https://ess.itsc.cuhk.edu.hk:8443/ess/echo/presentation/60966e8a-931b-42be-93ac-65ebe52f36e3>).

Appendix I

Project ID : 3210740
 Responsible Cost Centre : SES
 Responsible Person : TANG Mei Kuen
 Bursary Contact Person : Karen/Carmen Lam
 Start date : 11.01.16 End date : 28.02.17

THE CHINESE UNIVERSITY OF HONG KONG
 INCOME AND EXPENDITURE STATEMENT
 FROM 01.07.16 TO 28.02.17

Date 24.02.17 Page 1
 Time 14:12:42 ZJIE0300 / Q9934M

A New Concept for the Micro-Modules in Flipped Classroom of the Medical Education:
 Clinical Skill e-Learning Channel

	Year-to-date				Total	Accumulated Balance	Overall Budget	Available Budget Balance
	Balance at b/f	Actual payment	Commitment	Outstanding PR				
SELECTION OPTIONS								
=====								
Project definition :								
WBS Element :	EQUAL	3210740	INCLUSIVE					
Level :	BETWEEN	1	AND 99	INCLUSIVE				
Incl. Hierarchy : Yes								
Current data								

Piscal year		2017						
Period		08						
Frozen image								

Piscal year								
Period								
Budget year								
Budget version								

Summary		No						
Cost element group		ZJIVC2.TDG						
Subtotal at level		2						
WBS element status selection: Active and blocked								

Blocked date :	BETWEEN	01.01.1900	AND 31.12.9999	INCLUSIVE				

*** Please note that the 'Suppress' flag must be set to 'X' in all 'INCOME' levels of the cost element group specified.
 Otherwise, unexpected result will occur.

Project ID : 3210740
 Responsible Cost Centre : SES
 Responsible Person : TANG Mei Kuen
 Bursary Contact Person : Karen/Carmen Lam
 Start date : 11.01.16 End date : 28.02.17

THE CHINESE UNIVERSITY OF HONG KONG
 INCOME AND EXPENDITURE STATEMENT
 FROM 01.07.16 TO 28.02.17

Date 24.02.17 Page 2
 Time 14:12:42 ZJIE0300 / Q9934M

A New Concept for the Micro-Modules in Flipped Classroom of the Medical Education:
 Clinical Skill e-Learning Channel

	Year-to-date				Total	Accumulated Balance	Overall Budget	Available Budget Balance
	Balance at b/f	Actual payment	Commitment	Outstanding PR				
Expenditure								
Fixed Assets	0.00	9,418.00	0.00	0.00	9,418.00	9,418.00	90,900.00	81,482.00
Printing, Stationary & Supplies	0.00	500.00	0.00	0.00	500.00	500.00	0.00	(500.00)
Service Charges	13,437.50	63,952.00	0.00	0.00	63,952.00	77,389.50	0.00	(77,389.50)
Other Expenses	2,392.50	1,210.00	0.00	0.00	1,210.00	3,602.50	0.00	(3,602.50)
	15,830.00	75,080.00	0.00	0.00	75,080.00	90,910.00	90,900.00	(10.00)

Total Expenditure	15,830.00	75,080.00	0.00	0.00	75,080.00	90,910.00	90,900.00	(10.00)

TOTAL FUND BALANCES	(15,830.00)	(75,080.00)	0.00	0.00	(75,080.00)	(90,910.00)	(90,900.00)	
=====								

The commitment includes the staff cost commitment for three years or up to the employment contract end date. The budget holder is responsible to solicit funds from other sources to cover any deficit of the project, taking into account any approved budget to be released to the project in future years.



Poster Commendation Certificate

This certificate acknowledges that
the poster presentation of

Dr. Florence TANG, Prof. David CHUNG, Prof. Tony MAK, Prof. Simon NG,
Jenny FANG, Ray LEE, Kristy FUNG, Dr. Olivia NGAN

entitled

***“A New Concept for the Micro-modules in Medical Education:
The eLearning Clinical Skills (eC Skills) Channel”***

is awarded Poster Commendation in Teaching and Learning Innovation Expo 2016, CUHK

Supporting the advancement of teaching and learning quality in CUHK.



Professor CHUN Ka Wai, Cecilia
on behalf of eLS@CU