**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: Learning Scrotal Diseases through Micro-module and Augmented Reality
Principal supervisor: Jeremy Yuen-Chun TEOH
Co-supervisor(s): Chi-Fai NG
Department / Unit: Division of Urology, Department of Surgery, Faculty of Medicine.
Project duration: From December 2017 to October 2018
Date report submitted: 18th 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?*

This project aims to develop two micro-modules that can enhance the learning of scrotal diseases through augmented reality. Common and important scrotal conditions including hydrocele, varicocele, testicular tumour, testicular torsion and epididymal cyst shall be discussed. Scrotal examination shall be demonstrated and the important physical signs shall be highlighted with overlying images as augmented reality. The two micro-modules have been developed successfully without delay. The objectives have not been changed throughout the development process.

**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)*

Two micro-modules, namely "Common and important scrotal conditions" and "Clinical examination for scrotal conditions", have been developed. Both micro-modules were disseminated to the final year medical students through the Blackboard under 2017Y1-MEDU4710: Senior Surgical Dressership. The first micro-module was developed in

the form of video, powerpoint plus voiceover, i.e. Style S1. Essential knowledge regarding common and important scrotal conditions including hydrocele, varicocele, testicular tumour, testicular torsion and epididymal cyst were discussed. The duration of the video was 5 minutes and 46 seconds. The second micro-module was developed in the form of video demonstration, i.e. Style S8, with augmented reality. Scrotal anatomy was first explained, followed by live demonstration of clinical examination skills on common scrotal conditions including hydrocele, varicocele, testicular tumour, testicular torsion and epididymal cyst. The physical signs of the various scrotal conditions were highlighted with augmented reality. The duration of the video was 7 minutes and 49 seconds.

*Has the nature of the deliverables been changed?*
The nature of the deliverables has not changed.

*Have you adjusted your timeline?*
The timeline has not been adjusted and the two micro-modules have been developed without delay.

*Overall, was the project completed satisfactorily?*
Overall, the project was completed satisfactorily.

**3. Evaluation Plan**

*Have you altered your evaluation plans?*

The evaluation plan has not been altered.

*What monitoring data did you collect?*
Surveys and focus-group interviews regarding the two micro-modules have been conducted. The duration and content of the micro-modules were considered appropriate. The medical students felt that the micro-modules being developed could facilitate the learning process, and the acquired knowledge could be applied into clinical practice readily. The medical students felt that they had more in-depth knowledge of the various scrotal conditions. The medical students agreed that the micro-modules are useful for learning scrotal conditions and similar micro-modules should be produced for other medical conditions.

*Does your evaluation indicate that you have achieved your objectives?*

The feedback on the micro-modules is very positive. The evaluation process indicates that we are able to achieve our objectives with the use of augmented reality.

**4. Dissemination, diffusion and impact**

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

The micro-modules have been used to teach final year medical students. The micro-modules can be accessed by our medical students in the following website.
https://blackboard.cuhk.edu.hk/ultra/courses/_101668_1/cl/outline

*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?*

The micro-modules have been used to teach our final year medical students during their urology rotation. With the increasing number of medical students every year, our department has recognized the importance of e-learning in medical education. A number of micro-modules in general surgery and other surgical specialties have been developed.

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

Learning clinical examination skills are essential for medical students. The use of micro-modules can be used to teach medical students in a step-wise manner, and the use of augmented reality can let the medical students understand much more about the underlying concepts. This teaching approach can be used to teach other medical specialties.

PART II

Financial data

Funds available:

Funds awarded from MMCDG $ 41360

Funds secured from other sources $ 0
(please specify_____)

Total: $ 41360

Expenditure:

| Item | Budget as per application | Expenditure | Balance |
|---|---|---|---|
| Video recording for 2 HD videos | HKD 8600 | HKD 8600 | 0 |
| Video editing and motion graphic for 2 HD videos | HKD 31200 | HKD 31200 | 0 |
| Total: | HKD 39800 | HKD 39800 | 0 |

PART III

Lessons learnt from the project

*Please describe your way forward.*

The two micro-modules can be used to teach medical students on a long-term basis. Given the positive feedback from our medical students, we are planning to develop similar micro-modules for other urological topics in the future.

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

- *Key success factors, if any*
  - I have gained great support from my team and the Centre for eLearning Innovation and Technology, the Chinese University of Hong Kong, during the production of the micro-modules. I consider their support the key success factors for this project.

- *Difficulties encountered and remedial actions taken, if any*
  - I have found difficulties in recruiting patients for video demonstration. Therefore, we have used manikins for the demonstration.

- *The role of other units in providing support, if any*
  - The two micro-modules were developed in conjunction with the Centre for eLearning Innovation and Technology, the Chinese University of Hong Kong.

- *Suggestions to CUHK, if any*
  - *Example: what should be done differently?*
  - The support that I have gained from the micro-module courseware development grant and the Centre for eLearning Innovation and Technology at the Chinese University of Hong Kong is enormous. With these support, I think all teachers will be able to create micro-modules without major difficulties.

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: Augmented reality

Keyword 2: eLearning

Keyword 3: Urology

Keyword 4: Scrotal condition

(Least relevant) Keyword 5: Medical education

**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:**<br>*If a publicly accessible project website has been constructed, please provide the URL.*<br>The micro-modules can be accessed by our medical students in the following website.<br>https://blackboard.cuhk.edu.hk/ultra/courses/_101668_1/cl/outline |
| (b) **Webpage(s):**<br>*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.*<br>None. |
| (c) **Tools / Services:**<br>*If you have used any tools or services for the project, please provide names of the tools or services in here.*<br>The two micro-modules were developed in conjunction with the Centre for eLearning Innovation and Technology, the Chinese University of Hong Kong. |
| (d) **Pedagogical Uses:**<br>*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.*<br>Not applicable. |
| (c) **Others (please specify):**<br>Not applicable. |

**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** |
|---|---|---|---|
| *MBChB* | *1st term 2018* | *200* | *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) | *1* |
| (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.*

This project aims to develop two micro-modules that can enhance the learning of scrotal diseases through augmented reality. The first micro-module was developed in the form of video, powerpoint plus voiceover. Essential knowledge regarding common and important scrotal conditions including hydrocele, varicocele, testicular tumour, testicular torsion and epididymal cyst were discussed. The duration of the video was 5 minutes and 46 seconds. The second micro-module was developed in the form of video demonstration with augmented reality. Scrotal anatomy was first explained, followed by live demonstration of clinical examination skills on common scrotal conditions including hydrocele, varicocele, testicular tumour, testicular torsion and epididymal cyst. The physical signs of the various scrotal conditions were highlighted with augmented reality. The duration of the video was 7 minutes and 49 seconds. Both micro-modules were developed in conjunction with the Centre for eLearning Innovation and Technology, the Chinese University of Hong Kong, and were disseminated to the final year medical students through the Blackboard under 2017Y1-MEDU4710: Senior Surgical Dressership. Surveys and focus-group interviews regarding the two micro-modules have been conducted. The duration and content of the micro-modules were considered appropriate. The medical students felt that the micro-modules being developed could facilitate the learning process, and the acquired knowledge could be applied into clinical practice readily. The medical students felt that they had more in-depth knowledge of the various scrotal conditions. The medical students agreed that the micro-modules are useful for learning scrotal conditions and similar micro-modules should be produced for other medical conditions.