

**THE CHINESE UNIVERSITY OF HONG KONG**

**Micro-Module Courseware Development Grant**

**Scheme 1: Basic Scheme**

**Final Report (2016-17)**

To: The Ad hoc Committee on Planning of eLearning Infrastructure [mmcd@cuhk.edu.hk](mailto:mmcd@cuhk.edu.hk)

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**PART I**

Project title: **Real-time, radiology-pathology correlation of Bones, Joints and Soft Tissue Tumors gross specimens**

Principal supervisor: Prof. KT To

Co-supervisor(s): Not applicable

Department: Anatomical and Cellular Pathology

Project duration: From May 2017 to April 2018

Date report submitted: 12 Jun, 2018

**1. Project objectives**

Overall, this project was on track to meet its objectives, which is to provide Year 4 Medical Students a new opportunity to correlate the gross specimens with the specimen X-rays.

The experience of working on this MMCDG project has broaden my horizon that apart from achieving the project objectives, there are other methods, for example, correlation of brain tumors with specimen CTs, to improve the undergraduate education.

**2. Process, outcomes or deliverables**

To specify, a total of six micro-modules benefited as a result of this study. The details are as follows:-

1. MEDU3600 Basic Pathology-Bridging Course, Lecture, Introduction, 1(student contact) hour

2. MEDU3100 Anatomical Pathology and Clinical Hematology Course:-

2.1. E-lecture, Soft Tissue Tumor, 1 hour

2.2. Lecture, Non-neoplastic Bone Diseases, 1 hour

- 2.3. Lecture, Joint Diseases, 1 hour
- 2.4. Lecture, Bone Tumors, 1 hour
- 2.5. Tutorial, Bones, Joints & Soft Tissue Diseases, 2 hours

Although the nature of the deliverables remained unchanged, I have adjusted my timeline since there was a delay. Overall, the project was completed satisfactorily.

### **3. Evaluation Plan**

Due to time constraints, I have altered the evaluation plan slightly, which included feedbacks from the teachers, but not the students. Another reason is because students would not know the difference before and after the availability of specimen X-rays.

Feedbacks were now from the tutors in ACP, PWH. They have experience before and after the introduction of specimen X-rays as illustration tool.

Opinions from these tutors were positive and indicated that the project has achieved the objective, which provides students the chance to correlate the gross pathology with the specimen imaging at an early stage of their medical education.

### **4. Dissemination, diffusion and impact**

Herein please find one example of dissemination: Please kick the [\*MEDU3100 Tutorial- Bones, Joints & Soft tissues.\*](#)

For example, specimen X-ray of gross specimen [CU1208](#) was displayed side-by-side in this tutorial handout. This enables year 4 medical students to have instant understanding of the X-ray features and the corresponding pathology. When they mature into a physician, they usually rely on the X-ray, rather than the gross specimen to make a diagnosis of the underlying pathology.

This simple display was incorporated in the student's tutorial handouts.

Similar approaches may also improve the undergraduate teaching in other disciplines such as orthopedics and radiology.

PART II

Financial data

<b>Item</b>	<b>Budget</b>	<b>Actual Amount</b>
	\$	\$
X-rays	30,000.00	3,070.00
	\$	\$
Research Assistant	24,000.00	24,157.83
	\$	\$
Student Helpers	22,000.00	21,340.00
Specimen	\$	\$
Consumable	9,000.00	9,000.00
	\$	\$
Computer Software	15,000.00	14,205.02
	\$	\$
<b>Total</b>	<b>100,000.00</b>	<b>71,772.85</b>
		\$
	<b>Reminder</b>	<b>28,227.15</b>

		\$
Specimen Consumble	Blue Tips	2,400.00
		\$
	Glycerol	4,920.00
		\$
	Sodium Acetate	1,680.00

	Acobat DVD	\$
Computer Software	Rom	560.00
		\$
	Photoshop	5,370.00
	Software	\$
	Support	2,146.00
	Windows	\$
	Server	1,692.00
	Licence for	\$
	PMA	4,437.02

## PART III

### Lessons learnt from the project

The way forward: If possible, I would extend the project to correlate gross specimen of brain with specimen computer tomography.

- Key success factor: The most important factor for the success of this project is the project design and trial runs. For example, we have done totally three trial specimen X-rays, using two different X-ray machines and more than 10 different X-ray programs.
- Difficulties encountered and remedial actions taken: During the trial runs, most soft tissue specimen yielded negative results, so that we had to cut down the number of soft tissue specimens x-rays in order to be more cost effective.
- The role of other units in providing support: This project would not be possible without the support from the radiographers and the advice from Prof. Griffith, both of The Department of Imaging and Interventional Radiology, PWH.

## 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: Specimen X-rays  
                                 Keyword 2: Bones, Joints & Soft tissue tumors  
                                 Keyword 3: Radiology-Pathology correlation  
                                 Keyword 4: Real-time  
(Least relevant)      Keyword 5: Pathology

### **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:**

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

**(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.*

**(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):** [Anatomical & Cellular Pathology Department Tutorial Teaching](#)

**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 &amp; Year of offering</u>	<u>Approximate No. of students</u>	<u>Platform</u>
MEDU3600	2017	230	e-library
MEDU3310	All year 4 students	220	e-library

**Table 3: Presentation (if any)**

*Please classify each of the (oral/poster) presentations into one and only one of the following categories*

	<b>Number</b>
(a) In workshop/retreat within your unit (e.g. department, faculty)	2
(b) In workshop/retreat organized for CUHK teachers (e.g. CLEAR workshop, workshop organized by other CUHK units)	<i>Please insert no</i>
(c) In CUHK ExPo jointly organized by CLEAR and ITSC	<i>Please insert no</i>
(d) In any other event held in HK (e.g. UGC symposium, talks delivered to units of other institutions)	<i>Please insert no</i>

(e) In international conference	<i>Please insert no</i>
(f) Others (please specify)	<i>Please insert no</i>

### **3. A one-page brief write up**

#### **A simple idea**

*This project began with a simple idea that clinicians usually diagnose Bones, Joints and Soft tissue diseases based on clinical and radiological information. Pathological assessment is often confirmative and late in the management process.*

*Medical year 4 students rotate through Orthopaedic modules on August each year and studied imaging during this period. Before this project, ACP provide two courses of pathology, namely MEDU 3600 and MEDU 3310, which teach students with pathology specimens only. These students need to do the critical radiological-pathological correlation on their own, without guidance.*

*I was grateful that The Micro-Module Coursewear Development Grant had supported my proposal to do specimen X-rays of the existing gross pathological specimens of The Bones, Joints & Soft Tissue system of The ACP museum, so that students can understand easily such a difficult area at such an early stage of their medical education.*

#### **Difficulties**

*Two of the biggest difficulties were the confirmation of project budget and the arrangement of taking X-rays in the Department of Imaging and Interventional Radiology, PWH.*

*I applied the grant on Mar 2017. The application of this project was successful on May 5, 2017. The approval of the project proposal was, however, only at the end of Nov 2017. Additional five months (Nov 2017~Mar 2018) was required for trial X-rays, and to confirm arrangements of X-ray taking in the Radiology Department. Finally, on Apr 2018, all specimen X-rays were done within five working hours.*

*Retrospectively, I have underestimated the time required for going through all the procedures. This is also the reason why this report was late.*

#### **Biggest surprise**

*The main idea was the help medical year 4 students to understand pathology better. The big surprise, turned out to be the arousal of enthusiasm towards pathology among student helpers, who are medical year 1 and year 2 students.*

*They accepted the challenge, studied on their own, in advance, in research areas of*

*Bones, Joints and Soft Tissue Tumor pathology. By doing so, they not only gained the knowledge in advance, but they also understood the limitations of imaging (X-ray, at least) in diagnosing Bones, Joints and Soft tissue pathology!*

*To me, this was the most satisfying part of this project. After all, the main goal of medical education is to arouse the interest of budding doctors in the right field, right?*

**A power point from a student helper**

*I could not resist the temptation to conclude this project with the power point of one of the student helper, Mok Hiu Tung, a CUHK medical year 1 student at the time of the project.*

*This illustrated how this project generates the interest of a junior medical student in a difficult medical subject.*