

THE CHINESE UNIVERSITY OF HONG KONG

Micro-Module Courseware Development Grant

Scheme 1: Basic Scheme

Final Report (2016-17)

Report due 30 April 2018

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

PART I

Project title: Development of micro-modules for neuro-oncology

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Co-supervisor(s): Professor Ho Keung NG, Professor Wai Sang POON, Dr. Danny CHAN

Department / Unit: Department of Anatomical and Cellular Pathology

Project duration: From May 2017 to April 2018

Date report submitted: 30 April 2018

1. Project objectives

The overall objective of this project is to enhance the self-learning of medical students in brain tumors related contents. We have developed a total of six micro-modules for brain tumors with contents covering basic pathology, clinical features, and clinically useful biomarkers of brain cancers, with an overall aim in enhancing self-learning of medical students in brain cancers related knowledge. There is no modification in the objective of this project.

2. Process, outcomes or deliverables

We have completed the development of six micro-modules for brain tumors. The followings list out the micro-modules constructed,

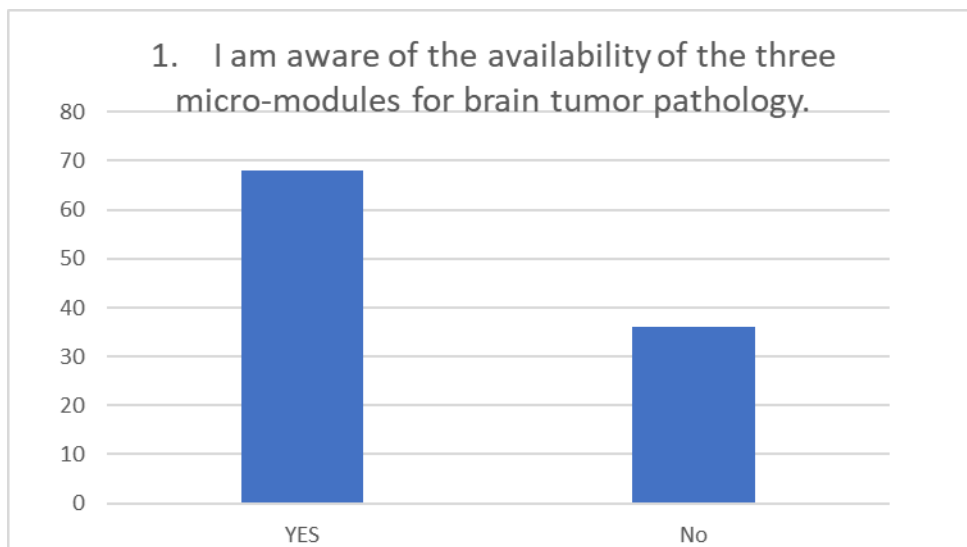
1. An overview of central nervous system tumors classification
2. Pathology of astrocytomas
3. Pathology oligodendrogliomas
4. Biomarkers of diffuse gliomas – IDH mutation
5. Biomarkers of diffuse gliomas – 1p/19q codeletion
6. Biomarkers of diffuse gliomas – MGMT promoter methylation

The micro-modules were developed in form of short video lectures (8 – 10 minutes each) and

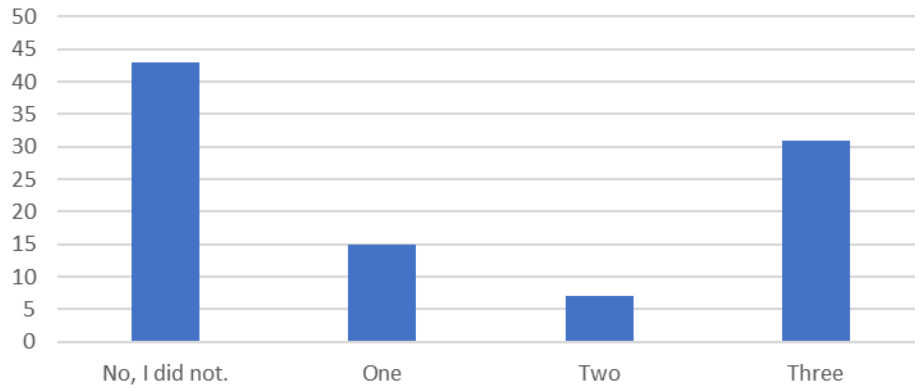
constructed by annotated PowerPoint with animations, incorporated with recording voice. PowerPoints are converted into video format (HTML5) compatible with both desktop and mobile device. We employed the Blackboard Learn as the dissemination platform of the micro-modules. The micro-modules have been uploaded to the Blackboard Learn system with mass email sent to the medical students about the availability of the micro-modules. The three micro-modules about brain tumor histopathology have been assessed by the year 4 medical students with evaluation done. The other three micro-modules about brain tumor biomarkers have been uploaded to the Blackboard Learn platform for medical students to assess in the next academic year because upon completion of construction of these three micro-modules in April, the year 4 medical students were taking the Second Professional Examination and the year 6 medical students had taken the Third Professional Examination. All micro-modules will be available in the Blackboard Learn platform for students of the coming academic year to assess.

3. Evaluation Plan

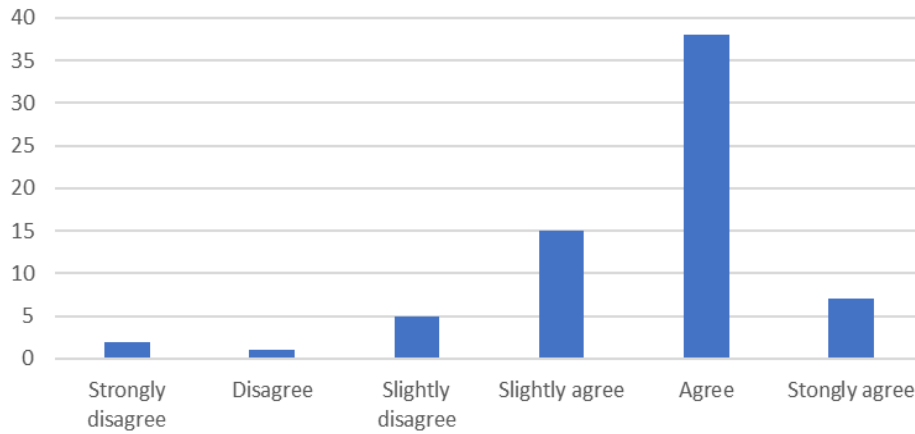
We did not change our evaluation plan but since the medical students have taken the year end examination at the time when all the micro-modules were developed, we could only obtain part of the evaluation results which are listed as follows.



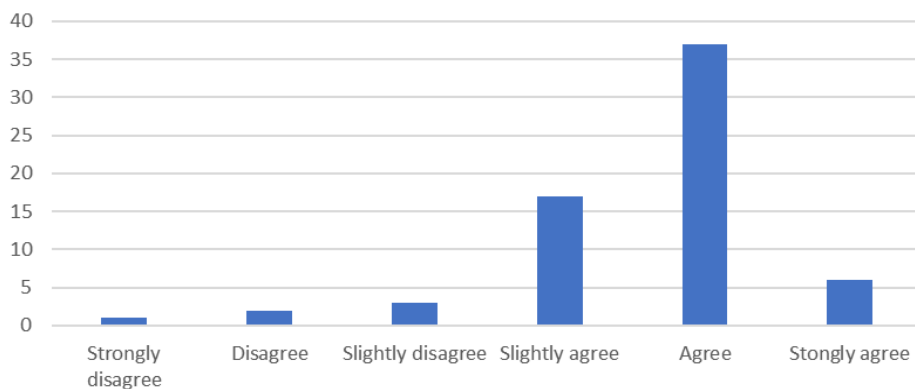
2. How many brain tumor pathology micro-modules have you gone through before the neuropathology tutorial?

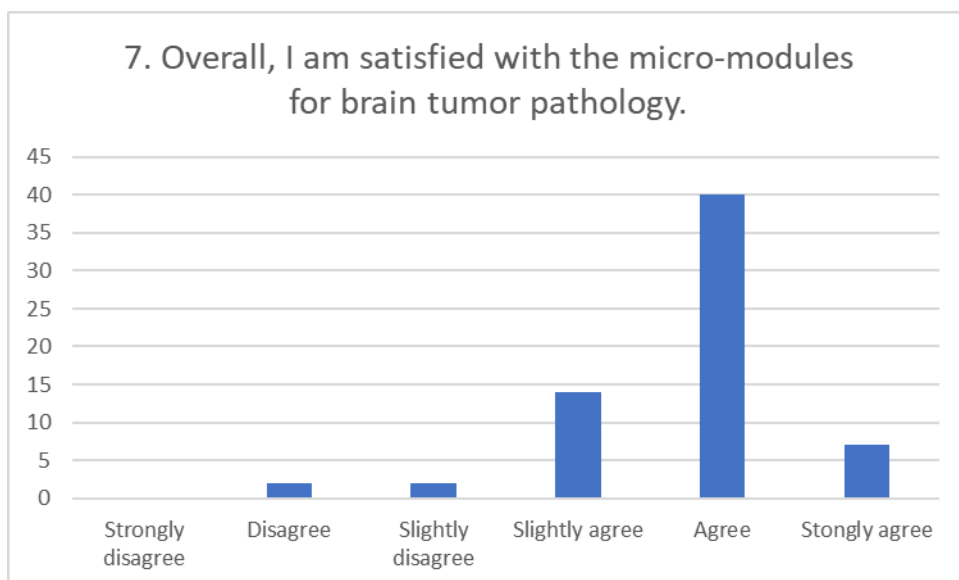
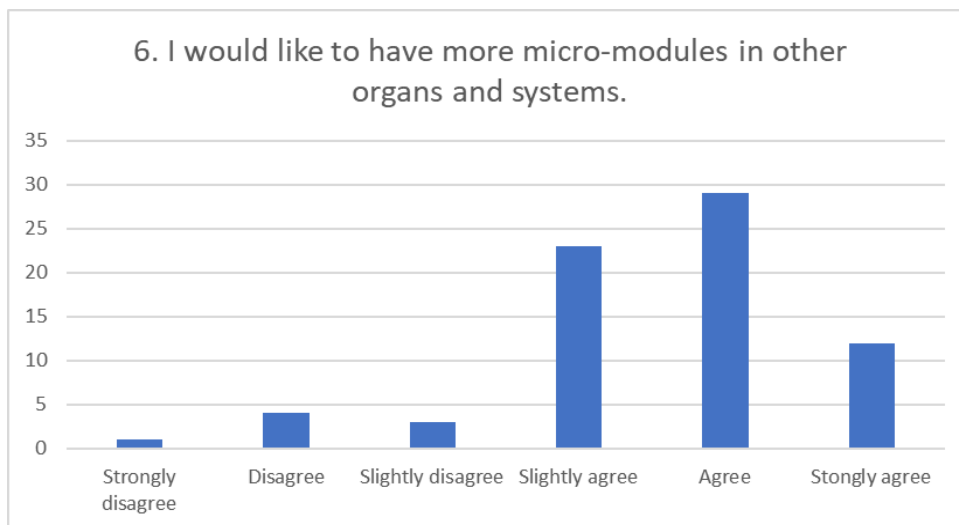
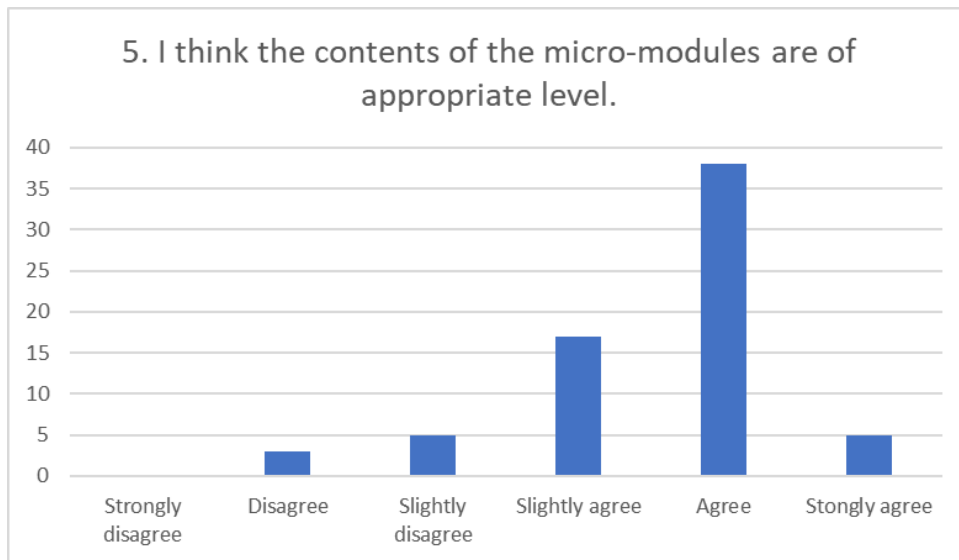


3. I think the micro-modules are useful for my self-learning in brain tumor pathology.



4. I think the contents of the micro-modules are adequate.





From the above evaluation results, we will put more efforts in notifying the students about the availability of the micro-modules in the Blackboard Learn platform, for instance, by repeated mass emails or announcement in whole lecture or announcement through class representative.

Also, further efforts are needed to increase the number of micro-modules that the students have watched before the respective lecture / tutorial. From the preliminary evaluation, we can also consider extending the construction of micro-modules to other organs and systems. Further evaluation will be continued in the coming academic year to collect further data for future improvement.

4. Dissemination, diffusion and impact

The followings are the links of the micro-modules developed.

An overview of central nervous system tumors classification

https://blackboard.cuhk.edu.hk/bbcswebdav/pid-2423859-dt-content-rid-13223595_1/xid-13223595_1

Pathology of astrocytomas

https://blackboard.cuhk.edu.hk/bbcswebdav/pid-2423860-dt-content-rid-13223836_1/xid-13223836_1

Pathology of oligodendrogliomas

https://blackboard.cuhk.edu.hk/bbcswebdav/pid-2423861-dt-content-rid-13224021_1/xid-13224021_1

Biomarkers of diffuse gliomas – IDH mutation

https://blackboard.cuhk.edu.hk/bbcswebdav/pid-2423862-dt-content-rid-13224157_1/xid-13224157_1

Biomarkers of diffuse gliomas – 1p/19q codeletion

https://blackboard.cuhk.edu.hk/bbcswebdav/pid-2423863-dt-content-rid-13224338_1/xid-13224338_1

Biomarkers of diffuse gliomas – MGMT promoter methylation

https://blackboard.cuhk.edu.hk/bbcswebdav/pid-2423864-dt-content-rid-13224481_1/xid-13224481_1

Experience obtained from this project and the preliminary evaluation results indicate that there is good potential that the construction of micro-modules can diffuse to other organs or systems in pathology teaching. Such micro-modules may facilitate the self-learning of pathology in other organs and systems for medical students.

PART II

Financial data

Funds available:

Funds awarded from MMCDG	\$ 80,000
Funds secured from other sources (please specify _____)	\$ 0
Total:	\$ 80,000

Expenditure:

Item	Budget as per application	Expenditure	Balance
Micro-modules design and production, animation creation and repackaging of micro-modules with quizzes	HK\$ 40,000	HK\$ 40,000	HK\$ 0
Online survey for evaluation and feedback of each micro-module	HK\$ 2,000	HK\$ 2,000	HK\$ 0
Software for tracking system	HK\$ 5,000	HK\$ 5,000	HK\$ 0
Software for data analysis	HK\$ 5,000	HK\$ 4,990	HK\$ 10
Laptop for micro-module production and data collection	HK\$ 8,000	HK\$ 8,000	HK\$ 0
Student helper for data collection	HK\$ 5,000	HK\$ 4,950	HK \$50
Teaching relief	HK\$ 15,000	HK\$ 15,000	HK\$ 0
Total:	HK\$ 80,000	HK\$ 79,940	HK\$60

PART III

Lessons learnt from the project

The current project has developed a small series of micro-modules with special focus in brain tumor pathology and clinically relevant molecular biomarkers with reference to the up-to-date literature. Preliminary evaluation results suggested that further efforts should be spent to increase the utility rate of the micro-modules among medical students. From the largely favorable responses about the constructed micro-modules, development of the micro-modules can be further extended to other organs and systems so as to facilitate the self-learning of pathology in other areas. Similar approach with basic histopathology supplemented with up-to-date biomarkers can be adopted so that students can be exposed to the clinically relevant contents, particularly personalized medicine is so much emphasized in the modern medicine teaching and practice.

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: brain tumor
 Keyword 2: pathology
 Keyword 3: neuro-oncology
 Keyword 4: biomarker

 (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>Powerpoint, iSpring Suite</i></p>
<p>(d) Pedagogical Uses:</p> <p><i>The micro-modules were used as pre-tutorial material for students to self-learn. The micro-modules were also available after the relevant tutorial for revision purpose.</i></p>
<p>(c) Others (please specify):</p>

Table 2: Resources accessible to a target group of students (if any)
<p><i>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,</i></p>

<i>facebook), please specify.</i>			
<u>Course Code/ Target Students</u>	<u>Term & Year of offering</u>	<u>Approximate No. of students</u>	<u>Platform</u>
<i>MEDU3310</i>	<i>2nd term 2017</i>	<i>220</i>	<i>Blackboard</i>
Table 3: Presentation (if any)			
<i>Please classify each of the (oral/poster) presentations into one and only one of the following categories</i>			Number
(a) In workshop/retreat within your unit (e.g. department, faculty)			<i>NA</i>
(b) In workshop/retreat organized for CUHK teachers (e.g. CLEAR workshop, workshop organized by other CUHK units)			<i>NA</i>
(c) In CUHK ExPo jointly organized by CLEAR and ITSC			<i>NA</i>
(d) In any other event held in HK (e.g. UGC symposium, talks delivered to units of other institutions)			<i>NA</i>
(e) In international conference			<i>NA</i>
(f) Others (please specify)			<i>NA</i>

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	<i>NA</i>
(b) Project leaflet	<i>NA</i>
(c) Project booklet	<i>NA</i>
(d) A section/chapter in a booklet/ book distributed to a limited group of audience	<i>NA</i>
(e) Conference proceeding	<i>NA</i>
(f) A chapter in a book accessible internationally	<i>NA</i>
(g) A paper in a referred journal	<i>NA</i>
(h) Others (please specify)	<i>NA</i>

3. A one-page brief write up

In this project, we have produced a small series of micro-modules of brain tumors for medical

students self-learning. The micro-modules cover the basic pathology, clinical features, and clinically useful biomarkers of diffuse gliomas, the most common type of primary adult brain cancer, with an overall aim in enhancing self-learning of medical students in brain cancers related knowledge. The micro-modules introduce important basic concepts of brain tumor pathology and some clinically-oriented concepts in terms of diagnostic, prognostic and treatment predictive molecular biomarkers to medical students.

The following is the list of micro-modules constructed in this project.

Micro-module title	Objectives
An overview of central nervous system tumors classification	<ul style="list-style-type: none"> - To know the basic classification of commonly seen CNS tumors - To know the common types of tumor in children and adults
Pathology of Astrocytomas	<ul style="list-style-type: none"> - To understand the main histopathologic features and prognostic outcome of various subtypes of astrocytic tumors
Pathology of oligodendrogliomas	<ul style="list-style-type: none"> - To understand the main histopathologic features and prognostic outcome of various subtypes of oligodendroglial tumors
Biomarkers of diffuse gliomas – IDH mutation	<ul style="list-style-type: none"> - To know the clinical significances of IDH mutation in diffuse gliomas - To have a basic concept about the workflow in IDH mutational analysis
Biomarkers of diffuse gliomas – 1p/19q codeletion	<ul style="list-style-type: none"> - To know the clinical significances of 1p/19q codeletion in diffuse gliomas - To have a basic concept about the workflow in 1p/19q codeletion analysis
Biomarkers of diffuse gliomas – MGMT promoter methylation	<ul style="list-style-type: none"> - To know the clinical significances of MGMT promoter methylation in diffuse gliomas - To have a basic concept about the workflow in MGMT promoter methylation analysis

The micro-modules are constructed in form of short video lectures of eight to ten minutes and have been uploaded to Blackboard Learn platform. From the preliminary evaluation results, we will put further efforts in increasing the awareness of the medical students about the availability of the micro-modules in the Blackboard Learning platform. Preliminary evaluation results also indicate that students would like to have micro-modules in the pathology teaching of other organs and systems. The micro-modules will be kept in the Blackboard Learn platform in the coming academic years which the platform has the track function so that we can continue to obtain the assess rate of the micro-modules. We will also continue the evaluation exercise after the relevant lecture / tutorial so as to obtain further feedback from the students. We will consider moving the micro-modules to the departmental teaching website after obtaining solid data so as to facilitate the convenience for students to assess the micro-modules.

Department of Anatomical and Cellular Pathology, CUHK
Evaluation form of Micro-module for brain tumor pathology in MEDU3310

Target students: MEDU3310, Year 4 MBChB students

1. I am aware of the availability of the three micro-modules for brain tumor pathology.
 Yes / No
2. How many brain tumor pathology micro-modules have you gone through before the neuropathology tutorial?
0 / 1 / 2 / 3
3. I think the micro-modules are useful for my self-learning in brain tumor pathology.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree
4. I think the contents of the micro-modules are adequate.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree
5. I think the contents of the micro-modules are of appropriate level.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree
6. I would like to have more micro-modules in other organs and systems.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree
7. Overall, I am satisfied with the micro-modules for brain tumor pathology.
Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree
8. Any other comments / improvement you would like to see in the micro-modules for brain tumor pathology?

*A script of your narrative or a copy of the powerpoint can be provided ☺
Good Teaching! Thankyou*

Department of Anatomical and Cellular Pathology, CUHK
Evaluation form of Micro-module for brain tumor pathology in MEDU3310

Target students: MEDU3310, Year 4 MBChB students

1. I am aware of the availability of the three micro-modules for brain tumor pathology.

Yes / No

2. How many brain tumor pathology micro-modules have you gone through before the neuropathology tutorial?

0 / 1 / 2 / 3

3. I think the micro-modules are useful for my self-learning in brain tumor pathology.

Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

4. I think the contents of the micro-modules are adequate.

Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

5. I think the contents of the micro-modules are of appropriate level.

Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

6. I would like to have more micro-modules in other organs and systems.

Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

7. Overall, I am satisfied with the micro-modules for brain tumor pathology.

Strongly disagree / Disagree / Slightly disagree / Slightly agree / Agree / Strongly agree

8. Any other comments / improvement you would like to see in the micro-modules for brain tumor pathology?

*Summary table at the end was very useful, as were the quiz questions.
More questions would be helpful.*