THE CHINESE UNIVERSITY OF HONG KONG

Micro-Module Courseware Development Grant

Scheme 2: Studies in Foundation Courses

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: Micro-modules for UGFN1000 classroom flipping 2

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Department / Unit: Office of University General Education

Project duration: From May 2017 to April 2018

Date report submitted: 18 Apr 2018

1. Project objectives
The Project is completed and met its objectives of providing a suite of micro-modules for 6 of the 11 classic texts to facilitate classroom flipping of the course In Dialogue with Nature. The interface of the site has also been upgraded to YouTube-like as planned. These objectives have not been changed.

2. Process, outcomes or deliverables
There are now 30 new micro-modules in 11 series recorded for the 6 of the 11 classics. Together with the other micro-modules developed from the previous micro-modules grant, students studying In Dialogue with Nature in 2017/18 are able to benefit from watching micro-modules related to the complete 11 classic texts within the syllabus.

The micro-modules are accessible on KEEP as a KEEP course. The interface upgrade is another area for this project to work on. It is now fully upgraded to a YouTube-like interface.

As a continuation project, the team has received another MMCD grant to produce/integrate more dedicate micro-modules to be added this developed micro-modules platform.

Text 1: Plato	**4 micro-modules** in 1 series for the background, personal stories, and technical knowledge COMPLETED Duration of each micro-module (mm:ss): 24:10, 35:35, 20:00, 8:38
Text 2: Aristotle	**6 micro-modules** in 2 series for the background, personal stories, and technical knowledge COMPLETED Duration of each micro-module (mm:ss): 35:34, 24:54, 22:49, 46:45, 27:35, 26:07 **1 micro-module** of discussion-type on related modern issue is COMPLETED Duration of each micro-module (mm:ss): 49:31
Text 3: Newton	**6 micro-modules** in 2 series on the background, personal stories, and technical knowledge COMPLETED Duration of each micro-module (mm:ss): 27:09, 14:40, 24:15, 26:29, 13:37, 24:49
Text 4: Darwin	**6 micro-modules** in 2 series on the background, personal stories, and technical knowledge COMPLETED Duration of each micro-module (mm:ss): 13:45, 15:24, 21:02, 20:26, 19:35, 22:14
Text 5: Watson	**3 micro-modules** in 1 series for the background, personal stories, and technical knowledge COMPLETED Duration of each micro-module (mm:ss): 7:29, 19:00, 6:30
Text 6: Carson	**3 micro-modules** in 1 series for the background, personal stories, and technical knowledge COMPLETED Duration of each micro-module (mm:ss): 23:16, 22:15, 24:53 **1 micro-module** of discussion-type on related modern issue is COMPLETED Duration of each micro-module (mm:ss): 50:00

Has the nature of the deliverables been changed? NO
Have you adjusted your timeline? NO
Overall, was the project completed satisfactorily? YES

3. Evaluation Plan

Surveys for evaluation were conducted 2017/18 T1 and will be conducted again for 2017/18 T2 students. As an entirely optional tools provided to the students, during 2017/18 T1, ~25% of students used the micro-modules website in a sampled class (~150 students) which advertised it. Among the reasons for not using the website, provided for the students to choose from, ~65% of students said they were too busy; ~24% said that there is a lack of promotion; ~9% said it is unrelated to course grade.

The number of registered users of the KEEP course is monitored and has been constantly increasing (now > 1000 registered users as at the time of writing this report). We believe the evaluation has achieved the objective that, as an optional tool, the students can be benefited from the use of it while not at the same time, increasing their burden of study if they decided that they are too busy for this extra content of the course.

4. Dissemination, diffusion and impact

The micro-modules are now all accessible via our KEEP course. To access, one will need a KEEP account to access it. The steps are as follow:

1) **Login/Create** your KEEP account at https://keep.edu.hk/ (please create your account with your cuhk email address. It will require you to activate the KEEP account using that address)
2) **Visit** https://moodle.keep.edu.hk/course/view.php?id=113
3) **Self-enrol** into the course with this self-enrolment key: **ugfn1000**

The results of the overall project have been presented in the following conferences/expos and journals:

Conferences/Expos:

KIANG Kai Ming, "Improving the effectiveness of a science classics-reading course through the use of micromodules". Australasian Science Education Research Association Conference, 2016.

KIANG Kai Ming, NG Ka Leung Andy, CHEUNG Hang Cheong Derek, WU Jun Vivian, "Micro-modules for UGFN1000 classroom flipping". Teaching and Learning Innovation Expo 2016.

KIANG Kai Ming, Derek Hang Cheong CHEUNG, NG Ka-Leung Andy, WU Jun Vivian, "Micro-modules for UGFN1000 Classroom Flipping", Teaching and Learning Innovation Expo 2016.

CHEUNG Hang-Cheong Derek, NG Ka-Leung Andy, KIANG Kai Ming, Hin Yan CHAN. "Effects and Risks of Micro-module Implementation in UGFN1000", Teaching and Learning Innovation Expo 2016.

CHEUNG Hang Cheong Derek, WU Jun Vivian, NG Ka-Leung Andy, KIANG Kai Ming, WONG Ka Tai Isaac. "Micromodules Development for a Compulsory Science Core-text

Course". Institute on General Education cum Teacher and Student Conference 2017.

NG Ka-Leung Andy, CHEUNG Hang-Cheong Derek, KIANG Kai-Ming. "E-Learning Implementation in a Compulsory Science General Education Course". Multidisciplinary Academic Conference on Education, Teaching and Learning (MAC-ETL 2016).

NG Ka-Leung Andy, CHEUNG Hang-Cheong Derek, KIANG Kai-Ming. "E-Learning Implementation in a Compulsory Science General Education Course". Multidisciplinary Academic Conference on Education, Teaching and Learning, MAC Prague consulting Ltd., 2016.

Journals:

KIANG Kai Ming, Hin-Yan Chan, Andy Ka-Leung Ng and Derek Hang-Cheong Cheung, "Effectiveness of Micro-Modules in a Science Classics Course", American Journal of Educational Research. 2016, 4(13), 917-926.

Website:

【網上講堂】與自然對話 – 網上輔助課堂 In Dialogue with Nature – Supplementary courseware, http://cu-genews.com/2016/09/08/505/

The developed micro-module website has been used by more than 10 lecturers who teach the course In Dialogue with Nature. The number of registered users to the website is now above 1000 students and is expected to increase with further promotion. Moreover, lecturers who teach this course from the CUHK (Shenzhen) are also using the website from 2017 onwards. As a common platform of micro-modules, it is expected that we shall integrate micro-modules developed by other PI teaching the same course, so that students can be benefited from the ease of access. We anticipate that the experience we gained in this project and our way of implementation of micro-modules can be one of the examples for the other parts of CUHK or other institutions to learn from.

Financial data

Funds available:

Funds awarded from MMCDG	$	100,000
Funds secured from other sources (please specify_____)	$	
Total:	$	100,000

Expenditure:

Item	Budget as per application	Expenditure	Balance
Student helpers	$33,000	$19,043.75	$13956.25
Part-time RA	$54,000	$54,216.31	-$216.31
Upgrade interface IT cost	$10,000	$0	$10,000
Dissemination cost (journal publishing) and misc. cost	$3,000	$0	$3,000
Total	**$100,000**	$73260.06	26739.94

Note: The balance is as of 17/4/2018. It is anticipated that most of the remaining balance will be spent on unpaid student helpers work done over 2017/18 semester 2.

PART III

Lessons learnt from the project

It is anticipated that the team would apply future MMCDGS to continue producing more delicate micro modules that helps introduce and integrate the large number and diverse style of micro-modules that we developed.
This project has involved the use of many student helpers. This helps the project to minimize the cost as well as generating contents that are deemed to be appropriate for the students to use. They however are difficult to be managed (both time and quality). Close supervision is necessary. In technical issues, ITSC has offered some valuable help in setting up the MMC website.
Another key success factor for this project is the detailed evaluation method. We have spent great effort in producing the entry-exit surveys, conducting it, and then analyzing it. These have resulted as a valuable feedback on the effectiveness of the deliverables of this project and are reported in peer-reviewed journals and international conferences.

Please describe your way forward.
Please describe any of the following item(s) accordingly:
- *Key success factors, if any*
- *Difficulties encountered and remedial actions taken, if any*
- *The role of other units in providing support, if any*
- *Suggestions to CUHK, if any*
  - *Example: what should be done differently?*

PART IV
Information for public access

The Chinese University of Hong Kong has launched two compulsory classics-reading courses for all students since 2012. One of these courses, In Dialogue with Nature, requires students to read science-related classics in order to cultivate their scientific mindset. Students have been reportedly encountering difficulty in studying this course due to the lack of relevant knowledge. A set of micro-modules was developed to supplement students with concepts that are deemed to be fundamental to the understanding of the classics. There are now over 160 micro-modules produced and structured to our KEEP course website for all the 11 classic texts within the course syllabus to facilitate classroom flipping.

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)   In Dialogue with Nature

                                 Science Classics

                                 Micro-modules

                                 Classroom Flipping

(Least relevant)   KEEP

2. Summary

Please provide information, if any, in the following tables, <u>and provide the details in Part I</u>.

Table 1: Publicly accessible online resources (if any)
(a) **Project website:** https://moodle.keep.edu.hk/course/view.php?id=113 (with first time registration password: UGFN1000)
(b) **Webpage(s):** http://cu-genews.com/2016/09/08/505/
(c) **Tools / Services:** *KEEP, Elite*
(d) **Pedagogical Uses:** The website is designed for classroom flipping of the course In Dialogue with Nature. The basic idea is to have the micro-modules to give further background knowledge to the students in various aspects related to the comprehension of each specific classic text in addition to the corresponding 1-hour lecture. This allows freeing up the 2 hours invaluable face-to-face teacher-student interactive tutorial for deeper discussions and reflections on the core questions and be able to relate them to modern issues and themselves.
(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.

Course Code/ Target Students	Term & Year of offering	Approximate No. of students	Platform
UGFN1000	*201718 T2*	*1500*	*KEEP*
UGFN1000	*201718 T1*	*1500*	*KEEP*

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)	*Please insert no*
(b) In workshop/retreat organized for CUHK teachers (e.g. CLEAR workshop, workshop organized by other CUHK units)	*Please insert no*
(c) In CUHK ExPo jointly organized by CLEAR and ITSC	*1*
(d) In any other event held in HK (e.g. UGC symposium, talks delivered to units of other institutions)	*1*
(e) In international conference	*2*
(f) Others (please specify)	*Please insert no*

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	*Please insert no*
(b) Project leaflet	*Please insert no*
(c) Project booklet	*Please insert no*
(d) A section/chapter in a booklet/ book distributed to a limited group of audience	*Please insert no*
(e) Conference proceeding	*1*
(f) A chapter in a book accessible internationally	*Please insert no*
(g) A paper in a referred journal	*1*
(h) Others (please specify)	*Please insert no*

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.

In Dialogue with Nature (the course code is abbreviated as UGFN) adopts the classics reading approach to cultivate scientific literacy for the undergraduate students in the Chinese University of Hong Kong (CUHK). UGFN is one of the two compulsory courses in the General Education Foundation (GEF) Programme specially designed for the four-year curriculum in CUHK. Beginning from 2012, it became compulsory for all approximately 4000 students per year. Distributed over two regular semesters and summer semester each year, the students are put into approximately 180 classes of maximum 25 students concurrently run by over 15 full-time and part-time lecturers.

While UGFN has been successful in helping students to attain the objectives, it is of concern that, students often reported that they would need to know more background knowledge to facilitate their reflections. As a 3-unit course, each week, a 1-hour session of lecture and a 2-hour session of interactive tutorial are dedicated for each of the 11 classics within UGFN syllabus. However, teachers and students often reported that the 1-hour lecture is insufficient to provide necessary background knowledge for the students to handle the specific classic text on their own. It is common that most of the time in the 2-hour interactive tutorial is used not for the discussion of the core questions but for the comprehension of the textual meaning of the classic.

Our project aims to flip the classroom for UGFN1000. In the last three years, the team has developed over 160 micro-modules and has structured them as a supplementary courseware on the KEEP platform with a YouTube-like interface. So far, it has over 1000 users in this new platform, after it is launched for one and a half year. It is evidenced that the courseware has effectively increased certain aspects of the quality of the discussions in the tutorials.