THE CHINESE UNIVERSITY OF HONG KONG

Micro-Module Courseware Development Grant

Scheme 3: eLearning Pedagogy Research

Interim Report (2015-16)

Report due 31 July 2016.
Please return by email to mmcd@cuhk.edu.hk

PART I

Project title: Effects and Risks of Micro-modules Implementation in UGFN1000
Principal supervisor: CHEUNG Hang Cheong, NG Ka Leung
Department / Unit: OGE
Project duration: From February 2016 to January 2017
Date report submitted: 28/07/2016

1. Project objectives

The project is so far on track to meet the set objectives.

2. Progress on process, outcomes or deliverables

What have been accomplished so far?

2 sets of micro-modules were implemented in several classes of UGFN1000 in 2015-16T2. The effectiveness and risks of its implementation are evaluated in three ways: 1) Entry and exit survey on intended learning outcomes (ILOs) attainment; 2) Online survey on students' view on micro-modules; and 3) Focus group interview on potential risk of using micro-modules.

1) Entry and exit survey

Data was successfully collected from 6 UGFN classes, which included 496 students. Two comparisons are done. First, the changes on the ILOs ratings (Exit –Entry score) are compared between students who *have* and *haven't* used the modules (Slide 4). Second, the changes on the ILOs ratings (Exit –Entry score) are compared between classes who *were* and *were not* provided with the modules (Slides 6 and 7). In general, it is evident that the implementation of micro-modules can enhance students' perceived ILOs attainment.

2) Online survey on students' view on micro-modules

Students who have used the micro-modules were invited to participate in an online survey,

which includes both positive and negative statements, to express their views on the effects and risks of micro-modules implementation. 21 valid data were collected and analyzed. In general, students commented positively on the enhancement of ILOs through micro-modules implementation (Slides 8 and 9). So far, minimal risk was revealed on students' motivation to engage in the lessons (Slide 10).

3) Focus group interview
4 group interviews were conducted in June 2016. The interviews were audio recorded and transcribed by student helpers. The transcripts are currently under analysis.

Have any obstacles been encountered and what are the remaining tasks to be finished?
Remaining tasks to be finished:
1) The whole study will be conducted again in 2016-17T1, including entry-exit survey, online survey and focus group interview.
2) Focus group transcripts in both 2015-16T2 and 2016-17T1 will be analyzed.
3) Term paper scores will be compared between the control group and the experimental group in both 2015-16T2 and 2016-17T1.
4) CTE will be compared longitudinally to evaluate the impact of micro-module implementation by tracking the trend of students' overall perception on the course.

Is the project still on time for completion (which includes preparation of the final report) on or before the grant expiry date?
All concerned data from 2016-17T1 is expected to arrive in late January, 2017. The data analysis is expected to finish in late April, 2017.

Provide a listing of project outputs to date.
As listed above.

3. Evaluation Plan

Have you altered your evaluation plans?
The evaluation will be conducted as planned.

Does your evaluation indicate that you have achieved your objectives?
The current evaluation method can give insight on the effectiveness and risk of micro-modules implementation.

4. Dissemination Activities (reports, websites, video links, products, *etc.*)

Provide a listing of dissemination activities to date.

1) The findings to date have been presented in ASERA conference 2016, titled "*Improving the effectiveness of a science classics-reading course through the use of micro-modules*".

2) Paper Publication in World Journal of Education, titled "*Assessing Students' Attainment in Learning Outcomes: A Comparison of Course-End Evaluation and Entry-Exit Surveys*", Vol 6, No 3, 2016.

Effects and Risks of Micro-modules Implementation in UGFN1000

MMCD Scheme 3

Interim Report

25/07/2016

Effectiveness of micro-modules implementation

- Measured by Entry and Exit Survey
  - Two student surveys were distributed to students at term start and term end

Students involved:

	Classes provided with 2 sets of micro-modules	Classes without provision of micro-modules
Number of students	430	66

Within the classes provided with 2 sets of micro-modules:

	Used	Not-used
Number of students	230	193

Effectiveness of micro-modules implementation

	Intended Learning Outcomes (ILOs)
ILO1	I am interested in natural science.
ILO2	Scientific knowledge is important for my intellectual pursuit.
ILO3	I understand the development of natural science.
ILO4	I understand various features of scientific methods.
ILO5	I understand the contributions and limitations of scientific inquiry.
ILO6	I can assess the social implications of scientific inquiry.

Effectiveness of micro-modules implementation

- Change in ratings on ILOs (Exit score – Entry score)

Students ***Used*** the modules VS ***NOT-used*** the modules

ILOs	Used	Not-used	Difference in change (Used – Not used)
ILO1	0.30	0.30	0.00
ILO2	0.31	0.33	-0.02
ILO3	1.24	1.08	0.16
ILO4	1.13	0.94	0.19
ILO5	1.01	0.83	0.18
ILO6	0.81	0.81	-0.01

Effectiveness of micro-modules implementation

- Change in ratings on ILOs (Exit score – Entry score)

Classes provided ***with*** two modules VS Classes ***without*** provision

ILOs	Provided Classes	Not Provided Classes	Difference in change (Provided – Not provided)
ILO1	0.31	0.30	0.01
ILO2	0.32	0.12	0.20
ILO3	1.15	0.96	0.20
ILO4	1.03	0.86	0.17
ILO5	0.91	0.68	0.23
ILO6	0.82	0.59	0.23

Effectiveness of micro-modules implementation

- Percentage of students who have reported increment on ILOs ratings *(Exit score > Entry score)*

Classes provided ***with*** two modules VS Classes ***without*** provision

ILOs	Provided Classes	Not Provided Classes	Difference in percentage (Provided – Not provided)
ILO1	43.02	40.91	2.11
ILO2	39.63	31.82	7.81
ILO3	71.90	63.64	8.26
ILO4	68.53	65.15	3.38
ILO5	65.97	50.00	15.97
ILO6	60.00	53.03	6.97

Effects and Risks of micro-modules implementation

- Students who have used the micro-modules were invited to participate in an online survey, which includes both positive and negative statements, to express their views on the effects and risks of micro-modules implementation

	Number
Surveys collected	**32**
Valid	**21**
Invalid (identical responses to all statements)	*3*
Invalid (students have not used the micro-modules)	*8*

Effects and Risks of micro-modules implementation

- Impact of micro-modules on ILOs:

Watching micro-modules/ attending supplementary lectures…		1	2	3	4	5	6	Average
Q2	increased my understanding on the development of natural science.	0	1	0	8	10	2	4.57
Q5	enhanced my reflection on the social implications of scientific inquiry.	0	3	4	11	3	0	3.67
Q6	increased my interest in natural science.	0	3	1	8	5	4	4.29
Q12	increased my understanding on the contributions and limitations of scientific inquiry.	0	2	2	8	9	0	4.14
Q13	increased my understanding on the features of scientific methods.	0	2	2	8	8	1	4.19

Effects and Risks of micro-modules implementation

- Impact of micro-modules on course delivery and assessment:

Watching micro-modules/ attending supplementary lectures…		1	2	3	4	5	6	Average
Q3	enhanced my performance in tutorial discussion.	0	2	0	12	6	1	4.19
Q7	enriched the materials in writing reflective journal/ term paper.	0	4	5	6	5	1	3.71
Q9	enhanced my understanding on the text content.	0	0	0	10	8	3	4.67
Q10	allowed me to have more in-depth reflection on the related topics.	0	1	5	7	5	3	4.19
Q14	enhanced my performance in quiz.	1	2	4	9	3	2	3.81

Effects and Risks of micro-modules implementation

- Impact of micro-modules on motivation to study/ interaction with others:

Watching micro-modules/ attending supplementary lectures…		1	2	3	4	5	6	Average
Q1	reduced my motivation to read the texts.	3	12	2	4	0	0	2.33
Q4	discouraged me to attend regular lectures.	5	13	2	1	0	0	1.95
Q8	discouraged me to discuss with fellow classmates in tutorials.	3	14	3	1	0	0	2.10
Q11	discouraged me to discuss with UGFN course teacher.	6	12	2	0	1	0	1.95