**THE CHINESE UNIVERSITY OF HONG KONG**

**Micro-Module Courseware Development Grant**

**Scheme 2: Studies in Foundation Courses**

**Final Report (2015-16)**

Report due 31 December 2016
Please return by email to The Ad hoc Committee on Planning of eLearning Infrastructure mmcd@cuhk.edu.hk

PART I

Project title: Mobile App for learning basic statistics
Principal supervisor: YUEN, Andrew
Co-supervisor(s) CHOW, David and KU, Fred
Department / Unit Department of Decision Sciences and Managerial Economics
Project duration: From January 2016 to December 2016
Date report submitted: 31 December 2016

## 1. Project objectives

The project aims to enable students with diversified background and capabilities to learn the statistical concepts at their own pace. The online business video cases will also provide an opportunity for students applying statistical concepts on a real-life business problem. The project is on track to meet the objectives.

## 2. Process, outcomes or deliverables

4 micro modules, namely descriptive statistics, sampling distribution, statistical inference and common survey errors, have been produced. It is noted that one more module – statistical inference – has been produced to meet students' needs. Two written cases supplement with a video have also been produced for the case teaching and learning. The natures of the deliverables are the same as mentioned in the proposal, and the project has been carried out in line with the timeline in the proposal. Overall, the project was completed satisfactorily.

## 3. Evaluation Plan

The evaluation plan has been implement as in the proposal. In one of the assignment, students are required to complete the following questions:

1. Use a 5-point scale to rank followings (1=Totally Disagree, 5=Totally Agree):

a. Is the KEEP learning platform easy to use? _____

b. Do videos enhance learning experience? _____

c. Does the business case help you understand statistics concepts? _____

2. Write a short essay (around half page) about the overall impression on this case-based assignment. Can you suggest any improvement (e.g. choice of case, video content, online learning platform)?

In response to questions 1a, b and c, most students chose 4 or 5 indicate the positive feedbacks from the learning platform, videos and the cases developed through the project.

The answers for the open-ended question 2 also suggested positive feedbacks from our students. And the suggestions from improvement will be address for the next year implementation.

**4. Dissemination, diffusion and impact**

The project has been presented at CUHK Expo, organized by CLEAR, in December 2016. In addition, the experience of the project implementation and teaching and learning experience has also been shared with other colleagues in BA Faculty during the T&L Brown Bag Seminar in October, 2016. The modules are hosted on the KEEP Platform as an open online course. Thus students outside CUHK could have access to the modules too. The modules will be shared and used in the Term 2 DSME2021. They could reserve as a review for students who are going to learn more advanced econometrics techniques.

PART II

Financial data

Funds available:

Funds awarded from MMCDG $ 88,000

Funds secured from other sources $ _____

(please specify_____)

Total: $ 88,000

Expenditure:

| Item | Budget as per application | Expenditure | Balance |
|---|---|---|---|
| Video production | 40,000 | 86,000 | -46,000[1] |
| Student helper | 22,000 | 1,320 | 20,680 |
| Mobile APP | 26,000 | 2,509.38 | 23,490.62 |
| | | | |
| | | | |
| Total: | 88,000 | 89,829.38 | -1,829.38 |

[1] Due to the budget cut in the approval process, we explored KEEP as a platform to host the modules. So the budget for the platform development has been much reduced, and reallocated to video production for higher quality videos.

PART III

Lessons learnt from the project

The feedbacks from students are very positive by using the videos and cases in the T&L process. Thus, it will further use in the DSME 2011 in the coming years. The experience will be shared with other colleagues in business school, who taught statistics-related course, and encourage them to use the modules.

The key success factors is to introduce e-learning at different levels of T&L. The videos could be useful materials for students to prepare the class on fundamental and straightforward concepts. The online questions could allow students, as well as teachers, to keep track individual students' learning progress. The online case could help students to understand the application of theory in practice.

One major issue is related to the logistics arrangement for using the KEEP Platform. Unlike Blackboard, the student information is not directly linked to the university enrollment system. Students are required to register their own account and then further enroll in the course. It created troubles, especially during the add-drop period. At the same time, running two platforms, KEEP and Blackboard, led to confusion.

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: Basic statistics

Keyword 2: Case teaching and learning

Keyword 3: Quantitative methods

Keyword 4: statistics in application

(Least relevant) Keyword 5: online platform for basis statistics

**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.* |
| (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.* |

| |
|---|
| (c) **Tools / Services:**<br><br>*KEEP Platform* |
| (d) **Pedagogical Uses:**<br><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.* |
| (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** |
|---|---|---|---|
| *DSME2110* | *1st term 2016* | *170* | *KEEP* |
| *DSME5110* | *1st term 2016* | *120* | *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) | *1* |
| (b) In workshop/retreat organized for CUHK teachers (e.g. CLEAR workshop, workshop organized by other CUHK units) | *nil* |
| (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) | *nil* |
| (e) In international conference | *nil* |
| (f) Others (please specify) | *nil* |

| **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 | *nil* |

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

**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.*

Our project is to establish an online platform for learning basic statistical concepts in DSME 2011. DSME2011 is one of the foundation courses in the curricular of most programs in Business School. More than 500 Year 2 business students will take the course in each academic year. On the online platform, there will be teaching videos which introduce basic statistics concepts, online examples and exercises, video teaching cases and discussion forum.

With the online platform, students with diversified background and capabilities could learn the statistical concepts at their own pace. The online business video cases will also provide an opportunity for students applying statistical concepts on a real-life business problem. The discussion forum will create a peer-learning environment for DSME 2011 students. Data from the online platform could also facilitate teachers to better monitor each student's performance, and provide necessary support.

On the online platform, students will go through four phases:

Phase 1 Knowledge acquisition: ***Online videos*** for learning basic concepts in statistics

Phase 2 Knowledge consolidation: ***Interactive online examples and exercises***, including multiple choices and short questions

Phase 3 Knowledge application: A well-designed ***online business case***

Phase 4 Knowledge co-creation: An ***online discussion forum***.

In this project, we have prepared four 4-min videos to introduce the following basic statistics concepts: Descriptive Statistics, Common Survey Errors, Statistical inference, and Sampling Design. Through the videos, students can understand the major ideas in the four concepts.

In addition, a teaching case, Good Luck Lemon Tea, has been developed in the written form. A video is created to make the case more vivid, and arouse the students' interest in the case.

The project has been launched in DSME 2011, in Term 1 of Academic Year 2016-2017. The students' feedbacks have been collected through questionnaire. The results indicated very positive response from students. Some students' sharing is as follow:

- we are impressed by this case-based assignment… through this self-learning experience, we will know out limitation and try to explore more knowledge
- The online design is very pleasant and the message is very clear… it is vert considerate that we can adjust the speed to our own needs.
- The exercises allow us to revise and familiarize with concept more and apply theory in practice, and let us build a more solid foundation on statistics
- The videos visualize concepts of measurement error, descriptive statistics, the inference as well as sampling distribution which make everything clearer and easier to understand.