THE CHINESE UNIVERSITY OF HONG KONG

Courseware Development Grant (2018-19)

Final Report

Report due 31 May 2019
Please return by email to CUHK cdgs@cuhk.edu.hk

PART I

Project title: Firm Visit using Virtual Reality Technology

Principal supervisor: Dr. KU, Kei Tat Fred

Co-supervisor(s): Dr. YUEN, Chi Lok Andrew

Department / Unit: Department of Decision Sciences and Managerial Economics, CUHK Business School

Project duration: From September 2018 to May 2019

Date report submitted: 31 May 2019

1. Project objectives

Is the project on track to meet its objectives?
Have the objectives been changed as a result of the experience of working on your CDG project?

Making use of virtual reality (VR) technology, the objective of the project to develop three multimedia, interactive virtual firm visits for students to learn from business managers in practice. This project serves as a pilot project to the development of a more comprehensive database of virtual firm visits to improve the overall learning experience of business undergraduate students. We aim to provide students with firm visit experience using VR and multi-media technologies. The project is on track and there is no change in the objectives.

2. Process, outcomes or deliverables

Please specify the number of different types of deliverables produced, and the course(s) (with course codes and titles) that have used the deliverables in Part IV, and provide more detailed descriptions here.
*Has the nature of the deliverables been changed?*
Have you adjusted your timeline?

Overall, was the project completed satisfactorily?

Three interactive virtual reality tours were developed, with interviews and other information incorporated into the tour.

1) Virtual Tour of the Company
   Making use of the virtual reality technology, the VR Tours show students around their work place so as to replicate the experience of an actual firm visit. Students can freely explore the environment of the firm with specific information popping-up.
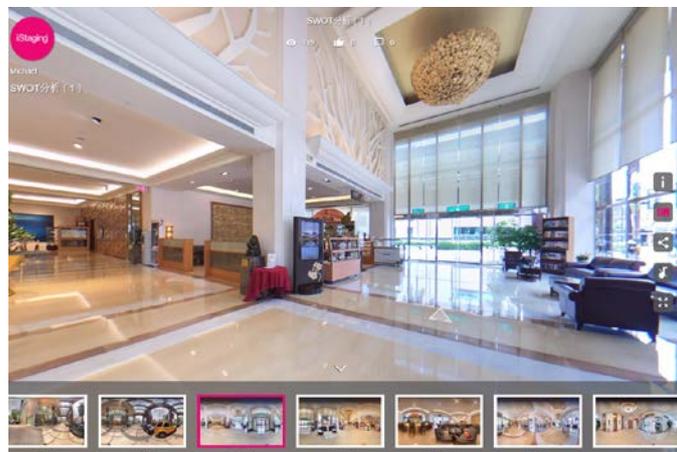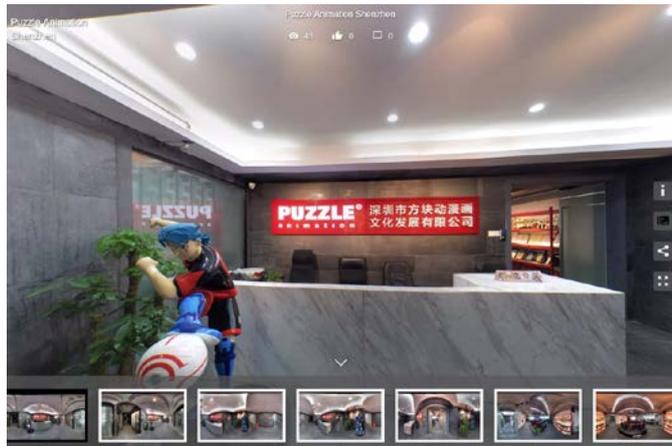
2) Interview with the Business Managers
   The interviews were conducted in a structured manner with the primary focuses on the factors affecting the firm's business strategies, like pricing, industry structure, marco-environments (political, environmental, social, technological) and relationship with supplier and customer. The project team was responsible to structure and conduct the interview with the managers. These interviews were incorporated with the virtual tour.

【方块动漫CEO钱国栋先生访问环节】

There was no change in the nature of the deliverables. The production timeline was tight and slightly delayed due to the difficulties in coordination with firms.

3. Evaluation Plan

Have you altered your evaluation plans?
What monitoring data did you collect?
Does your evaluation indicate that you have achieved your objectives?

We planned to use questionnaires to obtain feedbacks from students regarding their opinion on the effectiveness of the VR tours. Due to tight time schedule, however, we were not able to administer the formal survey. Instead, a focus group meeting was arranged to gather feedback from students. The five dimensions that we focused on were: (i) understanding on the theories; (ii) ability to link theories and real practice, (iii) understanding on specific industries, (iv) interest toward learning, and (v) overall learning experience

The major findings were:

(i) & (ii) Students agreed that the VR visit and the incorporated interviews can improve their understanding by linking up theories and the real business environment. (iii) Students agreed that the VR Tours are very useful to provide industry-specific knowledge for the pan-entertainment industry and hospitality industry. These knowledge are generally not available online or through other open sources.

(iv) Students agreed that the VR firm visits raise their level of interest in the subject, as there is very few examples of using the VR tech in the Business School.

(v) Students agreed that their overall learning experience was enhanced.

4. Dissemination, diffusion and impact

Please provide examples of dissemination: website, presentations in workshops or conferences, or publications.

Please provide examples of diffusion: how the project results/process/outcomes/deliverables have been used in your unit and other parts of CUHK or other institutions?

Please provide examples of impact: how the project results can be adapted to other disciplines.

The draft VR tours and info were uploaded:

https://livetour.istaging.com/40137126-62d3-4b4d-9c0b-4e229941c56d?index=13

https://www.youtube.com/user/ecfred/videos?view=57&flow=grid

https://livetour.istaging.com/e2e47a5a-1543-447d-8d2d-439ad156dddb?index=3

https://livetour.istaging.com/b9947f9b-f7b2-4bf3-9f09-66fc4e5aa3e8?_ga=2.2697323
6.821547560.1559277836-594027600.1554709831

We plan to join the Teaching and Learning Innovation Expo in the coming December to present our deliverables and findings. The VR tours will be used in the coming academic year, and formal surveys as well as focus group meetings will be conducted. We will consider summarizing our experience and publishing our findings in academic research format.

Given the popularity of the VR technology, we believed that other units / departments can seriously consider producing similar VR Tours to enhance students learning experience. We hope our pilot project can shed light on the further development of similar educational initiatives.

PART II

Financial data

Funds available:

Funds awarded from CDG $ 90,000

Funds secured from other sources $ 0
(please specify_____)

                         Total: $ 90,000

Expenditure:

Item	Budget as per application	Expenditure	Balance
Virtual tour production, including all processing and hosting	$48,600	$59,415	($10,815)
Video Clips Production and Editing	$32,400	$22,840	$9,560
General Expense & Student Helpers	$9,000	$7,650	$1,350
Total:	$90,000	$89,905	$95

PART III

Lessons learnt from the project

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?*

As described in Section 4, we plan to join the Teaching and Learning Innovation Expo in the coming December to present our project and findings. At the same time, the VR tours will be used in the coming academic year, and we will further polish them, and consider publishing our experience and findings in academic research format.

The major difficulties lied in the schedule and liaison with external parties, especially the firms and managers being interviewed. We have to first develop the set of interview

questions and work out a timeslot that fits the schedule of the manager, VR tour producers, and interviewers. Then the actual production of the VR tour also takes time, as the drafts have to be reviewed by the project team, and multiple revisions have to be done. Given the time schedule, we did not have enough time to fully utilize the VR tours in class. The project team will use these VR tours again in the coming few years. At that time we will do a more comprehensive project evaluation.

I'd suggest the University to consider lengthen the project period. The actual project period is from late September 2018 to May 2019, and it means that the project duration is around 7 months. As we will need to have a trail in class in order to evaluate the effectiveness, the actual production period was even shorter. In addition, if the relevant course is offered in semester 1, practically there is only 1 month for production. This is perhaps the reason why faculty members teaching semester 1 courses find it extremely difficult to apply for the Courseware Development Grant.

PART IV
Information for public access

Summary information and brief write-ups of individual projects will be uploaded to a publicly accessible CUHK CDG 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 relevance to your project) to describe your project.

(Most relevant)   Keyword 1: VR Firm Visit

                    Keyword 2: VR Case Studies

                    Keyword 3: VR Tour

                    Keyword 4: Virtual Reality

(Least relevant)   Keyword 5:

2. Summary statistics

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:** *If a publicly accessible project website has been constructed, please provide the URL*
(b) **Webpage(s):** https://mp.weixin.qq.com/s/tFTTUP_J0cxe-diVsGhZcQ
(c) **Others (please specify):**　VR Tours and Interviews https://livetour.istaging.com/40137126-62d3-4b4d-9c0b-4e229941c56d?index=13 https://www.youtube.com/playlist?list=PLCC1x1H553rd3KGj00qYpw2LgibyswF0g https://livetour.istaging.com/b9947f9b-f7b2-4bf3-9f09-66fc4e5aa3e8?_ga=2.26973236.821547560.1559277836-594027600.1554709831 https://livetour.istaging.com/e2e47a5a-1543-447d-8d2d-439ad156dddb?index=3

Table 2: Resource 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. CU Learning Management System (Blackboard), facebook), please specify.			
Course Code/ Target Students	**Term & Year of offering**	**Approximate No. of students**	**Platform**
Dept of DSME	*Students for DSME4040 and DSME4110*	*110*	*URL links*

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	*Please insert no*

units)	
(c) In CUHK ExPo jointly organized by CLEAR and ITSC	*1 (Expected Dec 2019)*
(d) In any other event held in HK (e.g. UGC symposium, talks delivered to units of other institutions)	*Please insert no*
(e) In international conference	*Please insert no*
(f) Others (please specify)	*Please insert no*

Table 4: Publication (if any)	
Please classify each piece of publications 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	*Please insert no*
(f) A chapter in a book accessible internationally	*Please insert no*
(g) A paper in refereed journal	*Please insert no*
(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 for posting on the CDG website.

Making use of virtual reality (VR) technology, the project team has developed three multimedia, interactive virtual firm visits for students to learn from business managers in practice.

We provide students with firm visit experience using VR and multi-media technologies. There are two major components of the project:

1) Virtual Tour of the Company
Making use of the virtual reality technology, the business managers show students around their work place so as to replicate the experience of an actual firm visit. Students can freely explore the work environment of the firm with specific information popping-up.

2) Interview with the Business Managers
The interview focuses on the factors affecting the firm's business strategies, like pricing, industry structure, marco-environments (political, environmental, social, technological etc.) and relationship with supplier and customer. These interviews are incorporated with the virtual tour.

The VR tours produced will be accessible not only via specific VR devices but also devices like laptop computers, mobile tablet or phones. Students can make use of their own devices to access the virtual tours.

Firm visit is a very important component to complement business education in addition to lectures. While lectures equip students with the theoretical framework and knowledge, firms visit can provide students with (i) an opportunity to understand the real business world, (ii) insight about the industry from managers in practice and (iii) an opportunity to realise how different theories and tools learnt can be applied in practical managerial problems. However, given various constraints, firm visit can be difficult to arrange. For example, companies usually will not be able to accommodate too many students at the same time, or the same company will not be available to host such event repeatedly. On the other hand, it is always difficult to come up with a common time slot for firms, students, and the teacher, not to mention that the cost of arranging such a firm visit may be prohibitive, especially if the firms are located overseas. In view of these constraints, firm visit usually can only be arranged as an out-of-classroom activities, which can only benefit a very limited number of students. The virtual firm visits can overcome the limitations discussed above to benefit greater number of students while, at the same time, minimising the administrative work involved in organising firm visit.

The VR visit can be used either in class time or before class. In the former case, teachers can guide students through the firm visit, explain relevant concepts and lead class discussion during the face-to-face class sessions. In the latter, students can take the VR tour on their own, be prepared when they come to class, and be engaged in more challenging class activities that involve higher-order thinking.