Developing University-Based Micro-Modules: Practical Perspectives from CUHK

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Abstract

The development and organization of micro-modules in e-learning plays a fundamentally indispensable role in tertiary education. Meanwhile, the use of micro-modules in various blended learning and flipped learning context has been growing rapidly in the past few years. CUHK (The Chinese University of Hong Kong) has initiated a series of grant schemes on developing university-based micro-modules across all departments since 2014, and this systemic construction of micro-modules to support flipped learning has been enhanced widely. Despite that both teachers and students have been benefiting from such schemes, there still exist some practical issues that need to be further addressed in subsequent stages in the future.

Key words: micro-module, construction, university-based, and CUHK

Introduction

During the past two decades, e-learning has emerged as a technical response to the influence of globalization on education. E-learning is targeted at "creating a community of inquiry independent of time and location through the use of information and communication technology" [1]. Therefore, the long-held ideal of educating every student with an excellent teacher and that learning should take place everywhere and every place when necessary is now likely to be brought into real practice. E-learning is evolving and taking many forms, such as blended learning, mobile learning, MOOCs (Massive Open Online Courses) and flipped classroom, etc. These various patterns of e-learning are all exclusively dependent upon online video clips as a major body of course content. Therefore, the core issue in developing and promoting e-learning is to construct systematic libraries of video-clips as a medium delivering various course contents.

Micro-Module Courseware Development

As a core constituting unit of various e-learning patterns, micro-module video clips have been employed to adapt conventional teaching in purpose of catering every individual student and their diverse needs in learning a same subject. With the sweeping pedagogic practice of blended forms of learning in the past decade worldwide, numerous educational practitioners have shifted their focus onto developing all kinds of video clips and mini-lectures recorded online. Meanwhile, online instruction is welcomed by students because it provides learners with convenience and autonomy [2]. It is broadly believed, especially by constructivists that learners learn at their own pace and process information in their unique way. "They are self-regulated, in the center of the learning paradigm…, not grouped by ability or age" [3], and learning is supposed to be active.

From the perspective of tertiary education, since college students are more autonomous and matured learners than middle school students, e-learning is likely to be more influential in terms of their learning outcomes and learners are likely to be more productive. Numerous world-class universities have been constructing their systems and libraries of teaching resources. "Growing use of mobile devices and increasing rates of enrollment" [4] in online courses both contribute to a soaring trend in online learning.

Micro-Module Courseware Development Grant Schemes in CUHK

CUHK is devoted to continuous enhancement of education and nurture young people with aspirations and competences to make life-long contributions to society. To fulfill that ultimate goal, adopting innovative pedagogies for continuous teaching enhancement becomes a must, through which students' learning capabilities will be enhanced continuously. University committees such as CLEAR (The Centre for Learning Enhancement And Research), ELITE (Center of eLearning Innovation and Technology) and Faculty of Education are designated to propose, implement and oversee policies, strategies and actions to promote e-learning and provided training in e-learning on campus.

"Institutional advancement in eLearning is one of the University's major directions for development, and the construction of micro-modules to support flipped classroom will be widely promoted" [5]. To support the developments and construction of e-learning resources in CUHK, MMCDGS (Micro-Module Courseware Development Grant Schemes) has been established to fund various programs in departments/faculties to produce quality micro-modules for teaching and learning. This scheme was officially initiated in October 2014, and 24 projects across all faculties were supported on a competitive basis by the grant scheme [5].

Taking into consideration the complicatedness of developing such a systematic library of micro-modules in school-based context, CUHK deliberately divides the whole scheme into three sub-schemes, each of which emphasize a different area in micro-module construction, namely, Basic Scheme, Studies in Foundation Courses and e-Learning Pedagogy Research. Basic Scheme is to set up some models and demonstrations in an exemplary sense for making micro-modules; Studies in Foundation Courses is aimed at promoting the use of these online resources in fundamental university courses, which are usually implemented classrooms

with large number of students enrolled and oftentimes parallel and multiple sessions under a same course; eLearning Pedagogy Research is mainly targeted at enhancing the pedagogical research ability in this field.

Due to the initial success of the first 24 projects, the scheme has now been extended and now it is conducted on an annual basis. A total of 15.254 million Hong Kong dollars' worth additional funding has been secured to support university-based e-learning development, out of which $13.5 million will be used to support three different micro-module courseware development grant schemes in three consecutive years starting from 2015/16 [5]. In terms of the grant, the allocation of the three schemes are 2 million, 1 million and 1.5 million Hong Kong dollars per year, respectively. Until this year, altogether courses have been funded to produce university-based micro-modules for the use of flipped classroom, blended classroom, etc. See Table I for details.

Reflection

A. CUHK Students Speaking High of Micro-Modules

Ever since micro-modules were first integrated into daily teaching and learning in CUHK, thirty courses both undergraduate level and postgraduate level have been based upon those micro-modules. In the meanwhile, six various MOOCs in CUHK have been conducted and in total 121,146 learners both inside and outside of CUHK have been enrolled [6]. Students hold positive and supportive opinions on such

TABLE I
Outcomes of CUHK Micro-Module Development 2014 through 2017

Year Period	Amount Granted	No. of Units Involved	No. of Projects
2014-2015	2 million	21	24
2015-2016	4.5 million	34	49
2016-2017	4.5 million	29	51

approaches of learning and also that their studies on campus could be adapted to their own pace when they enroll in online courses. One of the student representative made her remarks about what CUHK students perceive courses based on micro-modules that

> *... but you know that there are always gonna be those in the student body who really truly appreciate this and they take it on with a lot of energy and that's why. I think we also speak for a lot of people that we are actually very grateful for the micro-modules.* [5]

From students' perspective, we understand that such approach indeed caters to their needs as an adult learner who possess sufficient autonomy and self-regulation and they have more flexibility in determining their own learning goals and choosing which way they would like to receive education.

B. Practical Guidelines of Developing Micro-Modules

Despite the advantages of online learning, teachers in charge of developing such materials do have their own puzzles over how to construct quality micro-modules. Oftentimes, they feel they just record themselves lecturing and then put them online together with slides or other textual materials. Most of them find it not adequate to deliver what is supposed to be delivered in class when they are in conventional classrooms. Teachers

feel there should be a relatively generic procedure or model that can be followed when producing micro-modules. They are keenly exploring and eager to know some basic principles of assessing and evaluating the quality of such video clips.

There's a lot of communications going on between teachers who employ micro-modules in their teaching or are involved with creating such materials, and consequently they find quite a few of their peers experience the same confusing situation and confronted with puzzles of a systemic procedure of developing micro-modules. One the one hand, they are very much aware that this trend in education is unstoppable and they honestly welcome such challenge which could bring about rewarding outcomes of their students. On the other hand, they feel very confused over what is a standardized and organized procedure or process of constructing an online course, making their own video materials effective in use. They still need practical guidance and professional advice from experts.

Moreover, since different academic subjects have diverse characteristics in terms of their teaching and learning, the materials should definitely answer to those different needs while developing online videos. Therefore, different departments might have different standards and whether a generic rule that applies all fields is still under investigation.

C. Teacher-student interaction

When some courses are converted into online courses or even MOOCs, the teacher-student interaction seems to have dropped, which needs some complementary strategies to enhance the communication and thus the learning outcome.

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