

## Designing an E-Learning Curriculum for Certification Requirements: A Preliminary Study in Taiwan

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### ABSTRACT

This article reported an e-learning curriculum from design and accreditation requirements. This experience may be useful for the curriculum promotion in VET area. E-learning teaching method is an interactive teaching method where the teacher and students interact through digital media such as communication network, internet and video channels. This e-learning curriculum was designed for “Vocational Teaching and Assessment” course in a master degree program in one of the public universities in Taiwan. More than three-fourths of this course’s teaching time in a semester was taught using electronically supported media. In order to certify the tertiary institution e-learning curriculum, the course must be evaluated as stated by Accreditation Center for E-learning (ACE) in Taiwan. The requirements included the setting up of e-learning master program and the compliance of the certification of tertiary institution e-learning quality system. To ensure the quality and competitiveness of the e-learning curriculum, the ACE not only employed professors from various institutions of higher education, but also organized a review panel to conduct regular review of the accreditation process. In this study, the e-learning curriculum passed the review of the accreditation from the ACE. The students participated in this e-learning course has generally agreed that the learning was effective. Through the establishment of e-learning certification system, the result shows that it has improved the VTE program.

**Keywords:** E-learning, VET curriculum, certification, accreditation, Taiwan

### INTRODUCTION

#### Research Background

Since 1997 when the Ministry of Education (MoE) of Taiwan commenced the promotion of “Distant Learning Medium Range Development Plan”, the e-learning implementation environment in tertiary institutions has matured, where the number of e-learning courses set up and the number of attending students has risen year by year. E-learning teaching method is an interactive teaching method where the teacher and the students interact through transmission media such as communication network, computer internet and video channels (Cavus & Ibrahim, 2007). This e-learning curriculum was designed for “Vocational Teaching and Assessment” course for master degree program in one of the public universities in Taiwan. More than three-fourths of this course teaching time in a semester was taught using electronically supported media.

Digital distance learning could be a powerful e-learning system (Stear, 2012). Yunlin University of Science and Technology offers the faculty members and students a convenient and powerful e-learning system included various functions which are necessary for conducting online courses. Positive outcomes were recorded after this e-learning curriculum was implemented. The e-learning curriculum was submitted to the Accreditation Center for E-learning (ACE). In order to meet the public’s need for diversified learning channels and to provide opportunities for working people to

continue their education using electronically supported learning method, the Ministry of Education in Taiwan has released a document on how to implement distance learning in a university where e-learning curriculum would count as part of the course credit.

In order to certify the tertiary institution e-learning curriculum, the Ministry of Education has produced the operational guidelines for the review and accreditation of e-learning master degree program. For accreditation, three elements will be evaluated by the ACE. They included the setting up e-learning master program, the e-learning curriculum and teaching materials. To ensure the quality and competitiveness of e-learning system, Ministry of Education not only employed professors from various institutions of higher education, but also formed a review panel to conduct regular review of the curriculum, teaching material and the special programs. Among them, the e-learning master program must be certified before commencing of the class. Since e-learning is not restricted by the constraint of time and space and is flexible and convenient in its learning, therefore from the commencement of such program, the students attended this curriculum so far have generally agreed that the learning is as effective as those being taught in a classroom.

As of 2011, the number of certified e-learning programs have summed up to a total of 36 schools and 171 subjects and the number of certified teaching materials sums up to 27 schools and 78 subjects in Taiwan. Through the establishment of e-learning certification system, the result has been as originally targeted, and that is, it has effectively improved the VTE program due to students' willingness to participate in e-learning program and they have recognized the effectiveness of the program.

## REVIEW OF LITERATURE

### Implementation of E-Learning Curriculum in Institutions of Higher Education

E-learning is an interactive teaching method where the teacher and the students interact using ICT such as communication network, computer internet and videos, where more than half of the class time of each course was conducted using distance learning. Currently, the implementation methods of e-learning at Taiwanese institutions of higher education included synchronized and non-synchronized internet teaching, plus synchronized and non-synchronized mixed style teaching methods.

At the moment, the number of institutions offering e-learning courses, the number of courses offered and the number of enrolling students are growing each year in Taiwan. According to the reference data and statistics taken from the institution magazine by each school newspaper, in the 2001-2010 school years, the numbers of participating institutions are 86; and about 6,500 credit point courses offered cumulatively, and nearly 600,000 students were taught. Figure 1 shows the statistics of distance learning courses in Taiwan.

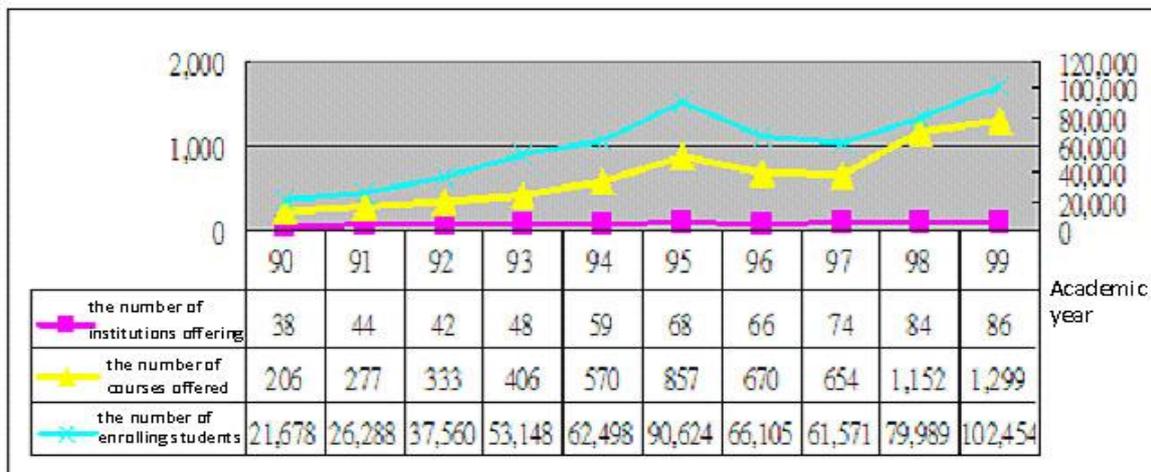


Figure 1: Statistics of distance learning courses in Taiwan

### **Setting Up of The On-The-Job E-Learning Master's Programs**

For a period of three years (from 2006 to 2008) after the end of the trial period, the e-learning master's programs have gone from probationary to normality in the year 2009. Since June 2010, applications of special courses and accreditations are accepted annually in February and July. The e-learning program also adopts the admission method that more diversified channels of learning to the public.

There were a total of 13 classes in the university that were approved to use this method. The ratio of certified e-learning courses must reach half of the total credit point for graduation and enrolment recruitment was valid for three years. Those admitted within the total enrolment quantity, its ratio of certified e-learning courses must reach 1/3 of the total credit for graduating and enrolment recruitment is valid for 5 years.

As of the end of June 2011, there have been seven universities that were approved to implement e-learning master programs such as National Chung Cheng University, Tamkang University, National Chengchi University, Chinese Culture University, Feng Chia University, National Ilan University, and Shih Hsin University. A total of 12 special courses with 257 enrolled undergraduate students and 180 graduates. Due to the flexibility of time and space in e-learning and the convenience of such learning, so far, the attending students have generally agreed that the learning effectiveness is as good as those being taught in a classroom. This is ideal for those working people to continue their education. Each year the Ministry of Education would measure the effectiveness of the e-learning master programs. Assessment was conducted by using a set of questionnaires to collect data. These data could be used to understand the actual implementation of the program and the effectiveness of the process in order to maintain the teaching quality of the e-learning programs.

### **Certification of E-Learning Courses and Teaching Materials**

The Ministry of Education commenced the certification application of e-learning courses and teaching materials in order to ensure the quality of the implementation of the credit courses, and to improve the teaching quality and competitiveness Taiwanese institutions of higher education. Acceptance of application and review operations are conducted twice annually in February and July. Apart from the curriculum of the e-learning master's program that requires certification, the teaching staffs who wish to teach the e-learning course can also seek certification from the Ministry of Education. Those certified curriculum and staff or teaching materials would be posted on the Ministry of Education's website, provided as a reference for the public. From 2006 to June 2011, the number of certified courses has accumulated to 171 courses, at an average of passing rate of 51 with 78 certified teaching materials.

### **E-Learning Certification**

Apart from handling certification and review applications, the Taiwanese Ministry of Education also provides services such as professional counseling, problems solving and field experiences to assist those institutions to obtain e-learning certification. In 2009-2010, accreditation counseling services were provided through the "Promotion of E-Learning in Tertiary Institutions and Inter-Institution Cooperation Plan", with a total of 29 counseling schools and 1,488 teachers were involved in providing the counseling services.

## **PURPOSE OF THE STUDY**

This study was designed to examine a distant-learning curriculum on teaching assessment for VET. According to assessment criteria, the e-learning course is evaluated based on design, structures and delivery. In addition, the teaching portfolio and documentary record are assessed for accreditation examination. After fulfilling the accreditation criteria, then only the e-learning course is formally approved.

## METHODOLOGY

Assessment method was adopted for this study. There was only one e-learning course “Vocational Teaching Assessment” was examined. The e-learning course was conducted unit by unit for 18 weeks. The teaching contents and learning process were uploaded using e-learning website at YunTech University. Results of the mid-term examination in final semester were taken as evidence for accreditation assessment. As soon as the Ministry of Education approved the application, this course was formally designated as e-learning curriculum. However, the accreditation for the course is for the period of 5 years.

## RESULTS

The preliminary results of this study consisted of the e-learning course development and evaluation. The main components of the e-learning course were stated as follows:

### Teaching Goal

The first goal of this course was to familiarize students with classical teaching assessment theories. Improving contemporary teaching assessment strategies and skills were the second goal. The third goal was to apply the assessment techniques to promote the quality of teaching and research.

### Teaching Syllabus

There were 18 weeks of classes scheduled in a semester. The teaching contents included basic assessment concepts, test construction, standardized testing, item analysis, reliability and validity, performance assessment, portfolio assessment, affective assessment, dynamic assessment, conception map assessment, and computerized testing system.

### E-Learning System Interface

Built on the Joint Net and Adobe Connect modules, there were three parts in the website system for teacher, learner and system controller, respectively. This website system can be easily switched between teacher and student users. Figure 2 illustrates the portal of the e-learning system.



Figure 2: E-Learning system interface

### System Maintaining and Education Training

Information center at YunTech University is in charge of the maintaining website and the training of new users. Posting new information and response are available for teacher and learners.

### Evaluation the Teaching

To evaluate the effectiveness of the delivery, a set of questionnaires and achievement test was administered to the users. Each week’s performance test was conducted and checked automatically by the computer system. With regard to the homework, teacher would evaluate and respond within two weeks after the learners submitted their homework. Figure 3 shows the evaluation process in the learning system.

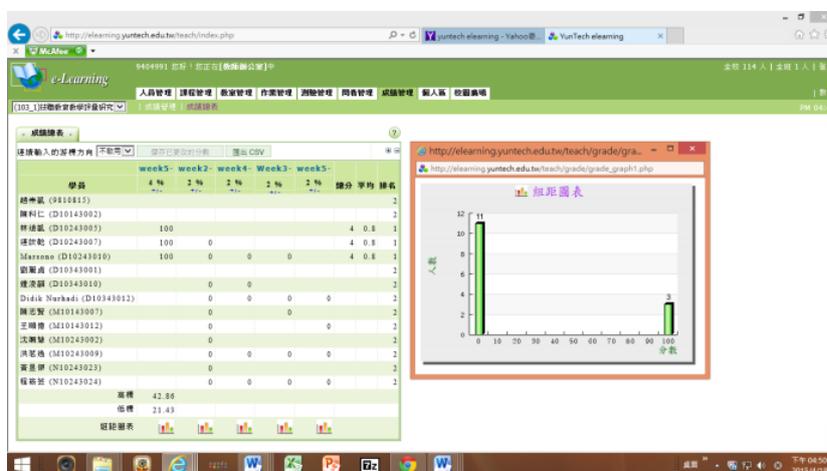


Figure 3: Evaluation function in the teaching website

### Accreditation Application

After the implementation of the curriculum, all the contents and process records were submitted to the accreditation center of MoE for application of a certification of e-learning curriculum. The examination indexes and rubrics included eight main items and 32 sub-items. The main indexes were as follows: to describe the course, to maintain learning motivation, to interact with learners and teaching material, to assess the learners’ achievement, to offer teaching management and service, and to check the function of the website system. Finally, this curriculum obtained the accreditation from the MoE.

## DISCUSSION AND CONCLUSION

E-learning is not a new conception in the VET field. Nowadays, e-learning has been used widely. However, it is a challenge to design a quality e-learning curriculum (Dado & Behesti, 2009). This study successfully demonstrated that e-learning could be applied in VET under systematic e-learning curriculum design. The e-learning curriculum design should consider the course objectives, website system infrastructure, teachers’ training and students’ learning outcome. It is crucial to invest enough resources into the teaching process especially the application of mobile devices for distance learning has become more popular than ever. According to Sung, Chang, and Liu (2016), it is proposed that more elaborate instructional design developments are needed to thoroughly exploit the educational benefits by utilizing mobile devices.

Furthermore, the accreditation organization should provide accurate indexes and rubrics during the e-learning course evaluation. The mechanism of examination inside school and outside organizations, for example MoE, were both necessary. However, according to Fatma, Karaoglan and Hafize (2016), motivation is considered as an important factor for students in continuing learning in distance education. They should enjoy the learning process in order to enhance their academic achievement. In sum, encouragement, motivation and financial support for the students are deemed necessary to encourage students to enrol in e-learning courses.

## **RECOMMENDATIONS**

This study reported an e-learning curriculum design, pedagogy and accreditation in a technological university in Taiwan. Based on the empirical data, the study successfully demonstrated that e-learning could be applied to vocational education. However, there are still some issues need to be considered:

1. Traditional teaching mindset needs to be changed in order to adopt new teaching paradigm using e-learning as an alternative method for teaching VET courses.
2. Investment in digital and online infrastructure should be enhanced. A powerful internet system may assist the implementation of e-learning system.
3. Teacher training to enhance familiarization of the distant-learning process should be adopted by educational institutions.
4. Synchronous and asynchronous teaching can be blended in an e-learning system in order to enhance the interaction among teacher and learners.

In conclusion, this study demonstrated a successful case for e-learning in a technological and vocational university in Taiwan. It could be applied to other countries with the same educational situation.

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