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## TRAINING TEACHERS AND MANAGERS TO MEET THE INNOVATION REQUIREMENTS OF GENERAL EDUCATION – EXPERIENCE FROM TAIWAN

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### ABSTRACT

*Using information technology in training and fostering teachers is one of the directions of fundamental and comprehensive reform in general education in Vietnam. Experience from Taiwan in training and fostering teachers is considered as a lesson in implementing the new generation education program. It is necessary to establish the key centers for training and fostering teachers in upcoming time. Information technology and communication make a significant contribution to the success of training and fostering teachers. That leading teacher training institutions in Vietnam has been equipped with technique and assistance in program development, training lessons helps to ensure the fact that Vietnam can learn from experience from Taiwan in developing training materials, implementing teacher training thanks to information technology and communication.*

**Keywords:** training and fostering teachers, information technology, communication, general education.

### 1. Training teachers and managers at general education schools- a necessity of any educational system

Teachers' and managers' professional development plays a key role in any educational system, which has been claimed in a lot of educational research recently published or translated into Vietnamese to serve innovation of education in Vietnam. Many international publications state the fact that training and fostering teachers exert influences on the capacity of general education.

This study summarizes experience from the United Kingdom, France and Taiwan. The following questions have been raised:

1. How often is training for teachers?
2. What will be trained/ fostered?
3. Who designs the contents for the training? (Are there any surveys on teachers for the contents and ways?)
4. Who organizes the training courses and designs the materials?
5. Are teachers active in training courses?
6. How is technology resorted to in training courses?

The answers for the above 6 questions are drawn:

**In the United Kingdom**, the information is as follows<sup>1</sup>:

1. Training is often provided.
2. Lecturers and leadership teams discuss annual training contents.
3. Managers at general education schools decide the training contents for their schools. Teachers also have their own plan for self- training and professional development. Many organizations observe teachers' classes when the training is offered.
4. There have been many prestigious training organizations such as Teach First, Teacher Development Trust. Moreover, there has been support from the Ministry of Training and Education, education organizations and universities. The trainers can be experienced researchers and lecturers from surrounding universities or recognized experts.
5. Teachers actively participate in training. One of the priorities for leaders and managers is professional development. Teachers are aware of life long learning.
6. Technology is used in all kinds of training. To take an example, to be a member of Teacher Development Trust, teachers can get easy access to online research database, ebooks and thousands of educational journals.

• **In France**, in 2011, one circular was issued on teacher training. The circular <sup>2</sup> states the fact that:

Teacher training enhances teaching quality and students' success, which is the objectives of priorities in policies in education. This is also the driving force for educational reform. Teacher training allows each teacher to fulfill their duties and their jobs in the best conditions and creates opportunity for them to strengthen their skills and get promoted. This training must be supported to achieve three objectives which are improving the capacity recognized by graduation degrees, enhancing professional experience and supporting teacher rotation.

The circular discusses ten issues as follows.

1 – Asserting the continuation of training and continuous professional development (CPD)

Teachers' continuous professional development focuses on:

- adaptation to new challenges of education system, specifically problems related to personalization in learning process;
- support for educational innovation and program change;
- issues related to classroom management, conflict resolution, school safety, especially for students taking their teaching practicum;

<sup>1</sup> Key words for knowledge on teacher and manager training in the UK 'continuing teach professional developmen'

<sup>2</sup> Source: <http://www.education.gouv.fr/cid55578/mene1100119c.html> **Orientations pour la formation continue des personnels enseignants du ministère de l'Éducation nationale.** NOR : MENE1100119C, circulaire n° 2011-042 du 22-3-2011, MEN - DGESCO A3-3 - DGRH

- development of digital usage.

2 – Designing training plans based on professional standards

3 – Considering CPD as the focus of human resource management policies

CPD supports teachers in improving, strengthening their knowledge and professional skills and brings about promotion possibility.

Training courses and needs are identified by each teacher assessment. In order to link their teaching career with their training and to make lifelong learning valuable, there is a need to make a list of capacities or competences. This list is added over time via data on training results.

The rights of training (Dif) was claimed in September of 2010. Each teacher are entitled to be offered 20 periods over 120 periods for their working hours apart from their holidays. The rights for CPD is added to training plans decided by the government.

4 – Clarifying the priorities of training programs

A national comprehensive training program (PNF) which is gathered in a single document annually published contains all the training activities of the country by the Ministry of Training and Education issues for inspection offices, managers and teachers.

5 – Designing a training program to be appropriate for training needs

Training activities must be based on detailed and careful needs analysis in combination with priorities over nations or regions. The assessment for previous year plans must be first done.

When it comes to the priority themes such as classroom management for new teachers or updates on research development, each region can figure out minimum training time allocation and identify training periods. Eighteen hours of training and fostering is a must in provincial training plans for primary school teachers.

6 – Enriching the teaching staff

Each educational institutions must annually upload to the Internet a directory of source teachers and managers in order to create a network to provide for teachers at primary schools and those at higher levels.

7 – Building training units and regions to be priority places for teacher training

Training activities would be organized in places which are near their school such as groups of primary schools at the regions or places where there locate many schools or groups of schools.

8 – Developing distance learning and resource exchange

Distance learning supplementing face-to-face training is still necessary and should be improved by program design and development in web pages. The web page of <http://national.pairformance.education.fr> is taken as an example. The web of Éduscol has one sector for online training and allows resource sharing. Many other webs contribute to

capacity building in training technology and enhance continuation between national training program and provincial training activities.

#### 9 – Assessing training efficiency

Training activities would be assessed by a tool which can be applied to review and modify training programs according to needs. Each training course is ended with an assessment activity.

#### 10 – Tightening the dialogue between central administrative offices and educational institutions

A national training monitoring committee has been established. This committee ensures the tight link between first-hand training and CPD. It decides which policies should be the priorities and how to ensure these policies to be effective per year. Besides, it undertakes annual assessment on training based on survey results and national as well as provincial evaluation. It also summarizes financial resources raised for training.

#### • In Taiwan

CPD for teachers is offered every year. Teachers must spend a minimum of 18 hours for CPD. The training ways vary from traditional face-to-face classes to conference, workshop or online training participation.

There is a web designed for CPD managed by National Kaohsiung Normal University. It can be searched at <https://www1.inservice.edu.tw/index2-3.aspx?Map=6>. Training served for CPD through this website started in early 2009.

One notable activity as “Service for the promotion of self-study plans and school-based development plans” began in 2012. This activity is divided and stated in two websites. One is “Service for study at schools” and the other is “Service for self-study”. In order to set up the websites, there was a survey conducted.

The subjects: 2336 teachers at secondary schools and high schools, 8792 from primary schools and 137 from special education schools.

How: through the web: <http://teacher.inservice.edu.tw> with the total of 26 days when a school year begins.

Statistics on the number of teachers:

Taiwan now has 149090 teachers (statistic figures in 9/2017) with 94.407 primary schools teachers, 46.772 at secondary schools and 53.943 at high schools. There are 2540 teaching at general education schools; 1104 at vocational schools.

#### **Time options to participate into the training courses:**

- Mornings from Monday to Friday;
- Summer holidays;
- Saturdays
- Evenings from Monday to Friday
- Winter holidays

- Sundays

The survey results indicate the fact that there are a variety of chosen modules and courses which fall into Program Design and Development, Teaching and Assessment, Classroom Management and Consultation, Professional Development and Responsibility Improvement, School Management and Real-life Knowledge.

*The modules that teachers in Taiwan can register are as follows*

Names of modules	Names of courses
1. Program design and development, Teaching and Assessment	1-1 Learning theories and physical and mental development for newly-born babies 1-1 Learning theories and physical and mental development for students 1-2 Educational courses and learning for children 1-2 1-2 courses 1-3 teaching 1-3 assessment 1-4 Special education 1-4 assessment 1-5 Integrated topics in teaching curriculums 1-5 Special education 1-6 Other outstanding problems 1-6 Syllabus outline 1-7 Other outstanding problems
2. Classroom Management and Consultation	2-1 Classroom management 2-2 Children care 2-2 Student Guidance 2-3 Health and Care for children
3. Professional Development and Responsibility Improvement	3-1 Teaching research 3-2 Evaluation of professional development of educational service officers 3-2 Evaluation of professional development of teachers 3-3 Professionalism and attitudes
4. New education policies	4-1 The concept of national basic education and twelve-year-strategies 4-1 Temporary extracurricular courses for kindergarten activities 4-2 Recruitment system 4-2 Temporary program of the kindergarten education activities (1) 4-2 Free and Conditional tuition fees 4-3 Temporary program of the kindergarten education activities (2)

	4-3 Learning for disabled students
	4-3 Secondary and High school education quality
	4-4 Phon Sao higher education program và vocational education
	4-4 Technical education dissemination
	4-5 High School Assessment
	4-6 Recruitment system
	4-7 Learning for disabled students
	4-8 Technical education dissemination
	4-9 Others
5. School management and leadership	5-1 Kindergarten management 5-1 School management 5-2 Kindergarten managers 5-2 School leaders 5-3 Interaction in education
6. Real-life Knowledge	Real-life Knowledge

- **In Vietnam**

Ten years ago, modules for teacher training were decided by the Ministry of Education and Training. Today, they are designed and developed by universities.

***Surveys to build training programs***

The example is taken from Ho Chi Minh City University of Education (HCMUE). In order to have the practical base for module design and development, the university conducted a survey on teachers in Southern provinces from Ninh Thuan to Ca Mau. Based on teachers' needs revealed in the survey results, there have so many modules to be built. Fourteen departments have built their own training programs and common ones. The topics focus on life skills education-soft skills for teachers at primary schools, IT application in teaching and learning, Active classroom organization, Testing and assessment in the orientation of students' capacity building, Skills in guiding students to do research, Experimental learning guidance, STEM and school consulting skills for school consultants. In our point of view, the modules are numerous. Take a look at the number of modules designed by the departments (Chinese department-2; Geography- 5; English -8; History - 10; Political Education -10; Mathematics department -11; Chemistry- 13; Special Education- 16; Early Childhood Department-19, Psychology Department-21; Educational Science Department-21, Literature and Language Studies Department-22; Biology-27, and Primary Education Department-54), we recognize the number of the modules by HCMUE (239 modules) is 6 times higher than that in Taiwan (42 modules).

***The situation of teacher training in HCMCUE during past years:***

From 2015 to now, HCMCUE has carried out training at following provinces and cities:

- In 2015: Ben Tre, Binh Duong, Ba Ria – Vung Tau, Hau Giang, Kien Giang and Long An;
- In 2016: Binh Duong, Tien Giang, Soc Trang, Long An and Kien Giang;
- In 2017: Hau Giang, Binh Duong, Long An, Binh Phuoc, Ca Mau and Can Tho.

Statistic figures of teachers and managers trained from 2015 to 2017

	2015	2016	2017
The number of general education school teachers trained	2096	2439	12.257
The number of managers trained	1623	1910	3721
<b>Total</b>	<b>3719</b>	<b>4349</b>	<b>8536</b>

In the process of fostering teachers and administrators, the school adopts the form of fostering according to orders and orders made between the school and the provincial DOETs. With the objective of specification of teacher training, HCMUE do not accept contracts with individuals. If the number of learners for a certain module/ course is not sufficient, this module/ course is not allowed to be offered. In fact, the signed contracts allow only a few of the modules/ topics to be covered by the specializations taught in high schools, those chosen are the general subjects in the field of education, teaching methods and teaching techniques and 1-2 topics related to professional majors.

***Training organizing ways***

Most of training courses are offered face-to-face in classrooms. Only some is provided online and offline.

**2. Towards training teachers and managers in the 4.0 technology era**

In the past decade, the concept of e-Learning and e-Learning training ways have updated with the development to technology and changes in learners' needs. An illustrative example taken for the evolution of e-Learning is the birth of m-Learning (and the latest is u-Learning). However, applications in the same system share similar features as e-Learning. It is to create a learning way to support the learners at all aspects of needs, habits, interests, conditions and environment. It is to meet the requirements of flexibility, convenience and “everytime, everywhere” of learning (Baharom, 2013; Behera, 2013; QUALCOMM, 2014; JISC, 2015). Therefore, if a teacher has profound knowledge of teaching plans and technological foundations, the design of e-Learning (or even m-Learning) is obviously effective. Look at Figure 1 for the model.

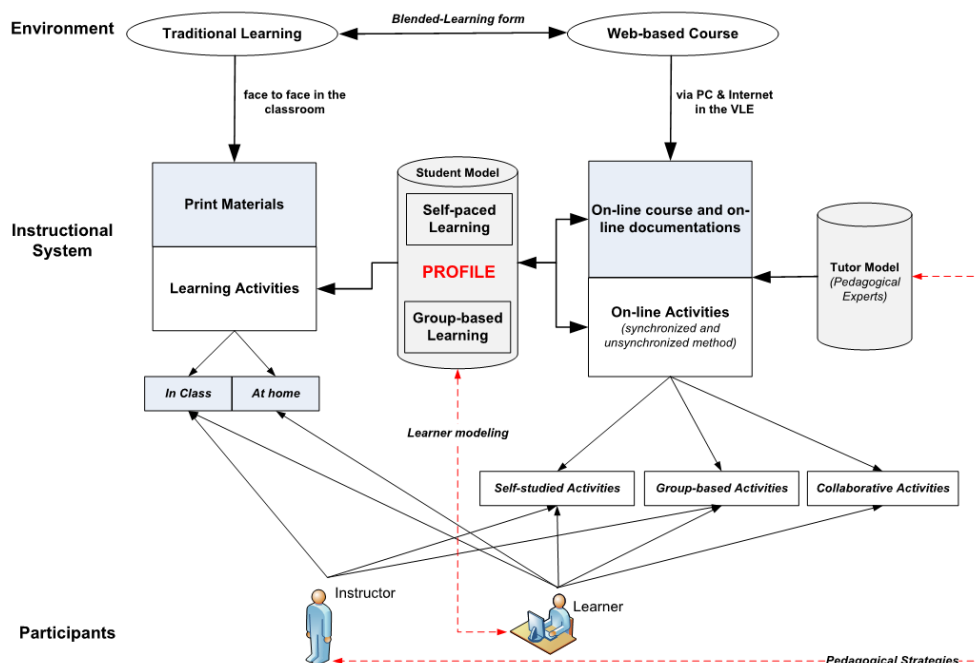
***2.1. Pedagogical models for the blended education of traditional face-to-face and online***

American Ministry of Education and Training in (Mean et al., 2009) stated the usefulness of the application of e-Learning ways in teaching (based on researches in

education from 1996 to 2008 in the United States) “Online education is more efficient than traditional education; and blended education of both online and traditional is the most efficient...”. From this idea, research groups led by Le Duc Long conducted surveys on related models like blended-learning (Wang et al., 2010), TPCK (Mishra & Koehler, 2006) and ACeLF (L. D. Long, 2014) in order to suggest pedagogical models as the theoretical base for the implementation of piloting system. There are basic requirements that should be met.

- **Activeness** of individual learners when they participate in the system;
- **Collaboration in teamwork and learning communities;**
- Two-way interaction between teachers and learners and the system.

The model suggested is illustrated in Figure 1 with three axes as environment, learning system and the participants.



*Figure 1. Pedagogical Strategic Model for on-line learning*

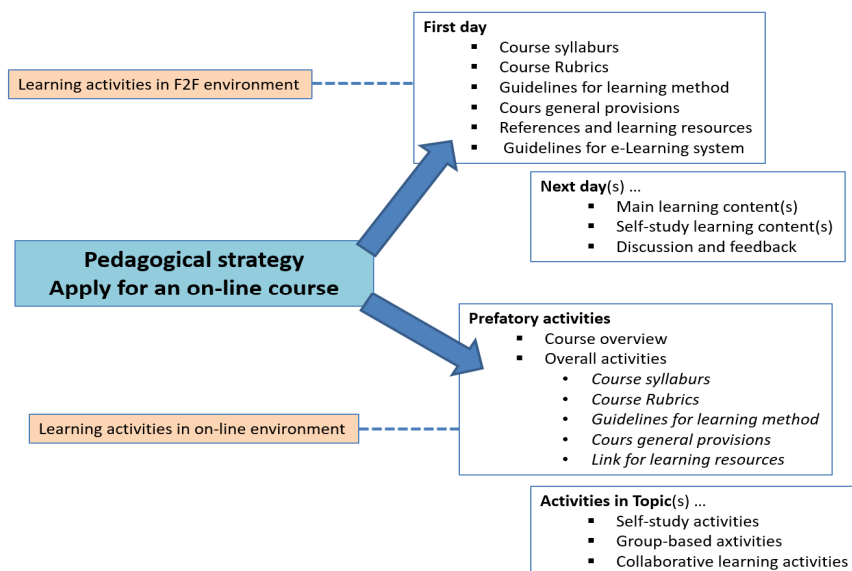
## 2.2. An illustration for the model

As in blended-learning (Wang et al., 2010), teaching environment of the system is divided into two: traditional and online. Le Duc Long et al implemented a learning model with technology and communication support in HCMUE:

- Traditional environment with face-to-face communication between the participants (teachers, learners) inside or outside classrooms
- Online environment is linked with a course (Web-base course/on-line course) on certain LMS/LCMS/CMS system.



Time allocation for a specific course/ module is up to the persons who design teaching plans. To take an example, at Information Technology Department at HCMUE, ACeLS was conducted in some courses in 2013 with the ratio of 1:3, i.e. time for online learning triples that of traditional face-to-face in classrooms. (Figure 2).



**Figure 2.** Illustration for a experimental pedagogical strategy

Meanwhile, the piloting course for English-B1 intensive course in M-learning system for teachers with 60 periods include 48 traditional periods and 12 online classes with the ratio of 4:1.

With traditional environment, teachers organize, guide and directly control the class activities both inside and outside the classrooms in order to convey the knowledge to students by materials, course books. Via direct communication between teachers and learners in the teaching process, teachers get to know learners' profile for appropriate pedagogical strategies for each kind of learners.

With online environment (as experimenting in M-Learning system), the system contains two parts. One is teaching contents (course books/ online learning materials) and the other is online learning activities.

- With reality point, course books/ online learning materials are designed under various ways like interactive course books or lessons allowing learners to self-study and self-research during the course (with or without download permission), lessons or assignments in .pdf format or clips (in .mp4 format) by weeks and by topics (with download permission), reference materials or links based on week topics. Moreover, for each course, supporting materials are also provided like course syllabus, course norm,

system guidance, learning guidance and grading criteria and rubrics. All these materials are offered and then instructed for use at the very beginning classes. (Look at Figure 2)

The survey results express learners' satisfaction on following activities:

- **Self-study and self-research:** This activity is designed in order for learners to be recognized and supported from the system and also monitored by teachers. Provision of materials or consultation is based on learners' profile and information of online learning process of each individual learner. (based on log file of the system)

- **Group work:** organizing group work regularly and periodically (with teacher participation or topic-based) . Teachers join in groups as a monitor- guider, the system as virtual members or virtual tutors or virtual students. This is the activity that needs to be paid close attention to, monitored and given feedback by teachers to encourage learners, especially through comments, assessments from teachers for individual participants.

- **Collaboration and sharing:** include the activities with the communities (groups/ classes) in which teachers play the roles of participants and supply related pieces of advice. These activities are set public and do not limit the participants. Pedagogical efficiency is recognized to enhance learners' motivation and has the meaning of the publication, the recognition of copyright to the product of the learner has shared.

### 2.3. *Virtual Learning Environment - VLE*

#### 2.3.1. *Definition of VLE*

VLE can be considered as a web-based e-Learning system that corresponds to the conventional teaching model including class (courses), content and learning activities, tests, feedback activities - reviews and other external resources (such as academic support links). It is also a virtual space where teachers and learners can interact by forum or chat or resource sharing.

VLE has synchronous nor asynchronous learning and teaching activities. In terms of the synchronous learning activities, the participants carry out their learning activities in "true time" and teachers conduct online activities in a virtual class. Learners can communicate with each other by machines and computers (micro/ camera or forum). When it comes to asynchronous system, self-study and self-research is more focused. Learners have to fulfill their assignments independently and fully well-aware through the system.

VLE can be illustrated by:

- *Learning Management System (LMS)*
- *Content Management System hay Course Management System (CMS)*
- *Learning Content Management System (LCMS)*
- *Managed Learning Environment (MLE)*
- *Learning Support System (LSS)*
- *Online Learning Centre (OLC)*
- *Open Course Ware (OCW)*

- *Learning Platform (LP).*

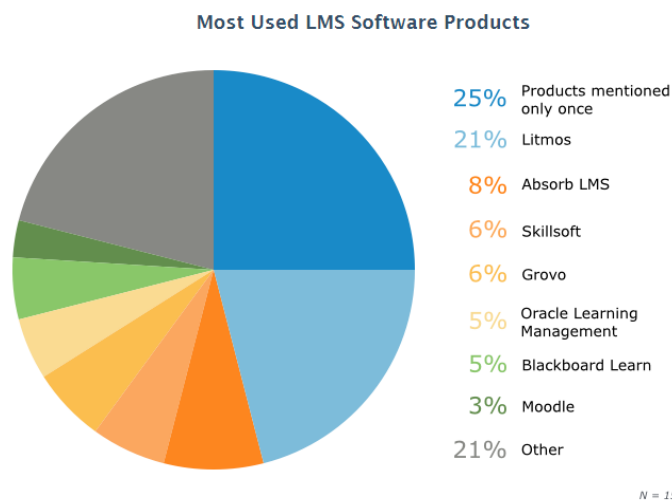
According to Oxford University Press: “*Virtual Learning Environment is a system to provide learning materials for learners via web-internet. These systems have their functions of monitoring, assessing learners with collaborating, sharing knowledge by communication tools such as blog or social networks. These activities happen 24 hours a day and help learners to manage their time, distance and learning conditions*”<sup>3</sup>. In fact, VLE brings about benefits which are appropriate for learners’ and teachers’ needs in current time. Specifically, its benefits can be as follows: :

- *Saving time for teachers;*
- *Facilitating presentations with teachers irrespective of changes in time and venue;*
- *Providing familiar guidance with web pages as students’ current needs;*
- *Creating conditions for teaching at various schools;*
- *Providing the re-use of resources in various courses;*
- *Automatically integrating students’ learning results into the information system.*

2.3.2. *Surveys on specific VLE systems (LMS/LCMS/CMS)*

Nowadays, learner management systems available in the market can be divided into two main types: free and paid. Each system has two sides. Therefore, before deciding to use a certain system, a learner should get the knowledge of cost, features, popularity and development probability in the future.

A report in <https://www.softwareadvice.com> in 2015 – a famous web in IT, the market of LMS/LCMS/CMS systems are illustrated in Figure 3.



**Figure 3.** Most used products of LMS application (2015)

<sup>3</sup> Source: <http://global.oup.com/uk/orc/learnvle/#top>

The figure indicates the fact that the differences among LMS system usage are not big. Therefore, in the future, this field will develop sharply and bring about considerable benefits that many IT companies want to get.

In terms of ten systems of LMS/LCMS/CMS most evaluated in 2017 (<https://www.pcmag.com>), Absorb, Axis, D2L Brightspace, Edmodo, Grovo, SmarterU, Schoology, Litmos, Moodle, Instructure Canvas are best evaluated.

Based on the information in the Internet<sup>4</sup> by system developers, the general summary of 10 systems surveyed is illustrated in Figure 4.

zNo	LMS/LCMS/CMS	Developer(s)	First Released	Fee type
1	Absorb	Canada	2002	Yes
2	Axis	US	1997	Yes
3	D2L Brightspace	Canada	1999	Yes
4	Emodo	US	2008	Yes
5	Grovo	US	2012	Yes
6	SmarterU	US	2009	Yes
7	Schoology	US	2009	No
8	Litmos	US	2006	No
9	Moodle	Australia	2002	No
10	Instructure Canvas	US	2008	No

**Figure 4.** Top 10 most used LMS/LCMS/CMS (2017)

- The detailed statistics is demonstrated in Figure 5 (<https://www.pcmag.com><sup>6</sup>)

The data from above surveys and summaries show that free or paid systems are widely used. Specifically, paid systems like Absorb, Axis, D2L Brightspace, Edmodo, Grovo, SmarterU while free of charge systems like Schoology, Litmos, Moodle, Instructure Canvas share users. According to [pcmag.com](https://www.pcmag.com), technological functions are not clearly identified. It can be stated that most of systems support *SCORM*, *Google Apps* and *Developer API* Available. Besides, Single Sign-On (SSO), Mobile Access are also supported.

<sup>4</sup> Source: <https://www.wikipedia.org/>

<sup>5</sup> Source: <https://www.pcmag.com/article2/0,2817,2488347,00.asp>

<sup>6</sup> Source: <https://www.pcmag.com/article2/0,2817,2488347,00.asp>

Product	Absorb LMS	Schoology LMS	Litmos LMS	Axis LMS	Moodle LMS	D2L Brightspace LMS	Edmodo LMS	Grovo LMS	Instructure Canvas LMS	SmarterU LMS
Product										
Lowest Price	SEE IT	SEE IT	SEE IT	SEE IT	SEE IT	SEE IT	SEE IT	SEE IT	SEE IT	SEE IT
Editors' Rating	●●●●○ 60% 5★ CHOICE	●●●●○ 60% 5★ CHOICE	●●●●○	●●●●○	●●●●○ 60% 5★ CHOICE	●●●●○	●●●●○	●●●●○	●●●●○ 60% 5★ CHOICE	●●●●○
SCORM Import	✓	—	✓	✓	✓	✓	—	✓	✓	✓
Bundled Course Content	—	✓	—	—	—	—	✓	✓	✓	—
Instructor-Led Training (ILT) Support	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Google Apps Integration	✓	✓	—	✓	✓	✓	✓	✓	✓	—
Single Sign-On (SSO)	✓	✓	✓	✓	✓	✓	✓	✓	✓	—
E-Commerce	✓	—	✓	✓	✓	✓	—	—	—	✓
Developer API Available	✓	✓	✓	✓	✓	✓	✓	✓	✓	—
Gamification Features	—	✓	✓	✓	✓	✓	✓	✓	✓	✓
Mobile Access	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Read Review	<a href="#">Absorb LMS Review</a>	<a href="#">Schoology LMS Review</a>	<a href="#">Litmos LMS Review</a>	<a href="#">Axis LMS Review</a>	<a href="#">Moodle LMS Review</a>	<a href="#">D2L Brightspace LMS Review</a>	<a href="#">Edmodo LMS Review</a>	<a href="#">Grovo LMS Review</a>	<a href="#">Instructure Canvas LMS Review</a>	<a href="#">SmarterU LMS Review</a>

Figure 5. Detailed information of top 10 most used LMS/LCMS/CMS (2017)

### 3. Conclusion

A strategy for teacher and manager training to meet the requirements of general education innovation based on IT development and communication advancement as well as 4.0 Revolution accomplishments is a need. The centers with the functions of training teachers and managers should be set up based on regions and provinces. Specifically, two to three centers would be established in Ha Noi for the North and mountainous Northern areas and in Ho Chi Minh City for southern and western provinces. One can be in Hue or Danang. With the support of IT systems and appropriate training contents, there may be no distance in regions and in the capacity of teachers and managers across the country.

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- <https://www.edsys.in/innovative-science-teaching-methods/>

**BỒI DƯỠNG GIÁO VIÊN VÀ CÁN BỘ QUẢN LÝ  
ĐÁP ỨNG YÊU CẦU ĐỔI MỚI  
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**TÓM TẮT**

*Sử dụng công nghệ thông tin trong việc đào tạo và bồi dưỡng giáo viên là một trong những định hướng đổi mới căn bản toàn diện giáo dục phổ thông trong giai đoạn mới ở Việt Nam. Kinh nghiệm của Đài Loan về việc bồi dưỡng giáo viên là một bài học cho Việt Nam trong việc triển khai chương trình giáo dục phổ thông mới. Việc thành lập (các) trung tâm cấp vùng về đào tạo và bồi dưỡng giáo viên là việc làm cấp bách trong thời gian tới. Công nghệ thông tin và truyền thông góp một phần lớn vào sự thành công của bồi dưỡng giáo viên. Qua việc các trường sư phạm lớn ở Việt Nam đã và đang được trang bị kỹ thuật xây dựng chương trình, bài giảng bồi dưỡng giáo viên phục vụ chương trình phổ thông mới, Việt Nam hoàn toàn có thể học tập kinh nghiệm của Đài Loan trong việc xây dựng tài liệu tập huấn, tổ chức bồi dưỡng giáo viên với sự góp sức của công nghệ thông tin và truyền thông.*

**Từ khóa:** *đào tạo và bồi dưỡng giáo viên, công nghệ thông tin, truyền thông, giáo dục phổ thông.*