

**MINISTRY OF EDUCATION AND TRAINING
THE VIETNAM INSTITUTE OF
EDUCATIONAL SCIENCES**

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**PROJECT-BASED LEARNING WITH E-LEARNING
SUPPORT FOR INFORMATICS TECHNOLOGY
TRAINING OF COLLEGE DEGREE**

**Specialization: Theory and history of education
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SUMMARY OF THE THESIS

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PREAMBLE

1. REASON FOR CHOOSING THEMES

At present, the quality of human resources training in information technology has not met the requirements of enterprises. About 60% of young workers graduating from vocational schools and colleges need to be retrained immediately after recruitment, according to a World Bank survey. The Resolution of the 8 th Plenum of the 11th Party Central Committee (Resolution No. 29-NQ/TW) with the content of fundamental and comprehensive reform of education and training to meet the requirements of industrialization and modernization. In the context of the socialist-oriented market economy and international integration, it is clearly defined "For higher education, focus on training high-level human resources, fostering talents and developing products. The quality and capacity of self-learning, self-enriching knowledge and creativity of learners.

Classroom and group concepts are not limited to traditional concepts as they are no longer limited to space and time. The learning environment will be highly interactive and intelligent, including e-Learning. The strength of e-Learning is that it allows learners to select and revise content as they wish, independent of time, space and personal ability, as well as expand the context of interaction. Society to support the learning process. The role of teachers in the current period has shifted from being a knowledge transferor to a facilitator, managing the learning environment and motivating for learning. It is necessary to exploit the strengths of e-Learning in training. .

Therefore, the study of project-based teaching with the support of e-Learning As a form of teaching, in order to strengthen the link between school and social practice, develop positive thinking skills, creative thinking, communication skills and lifelong learning to match the psychology Studying in Vietnam is very urgent. The "Project-based Learning in IT College degree training with the Support of e-Learning" is conducted to improve the quality of learning and to develop learning skills. Collaborate students to meet the human resources requirements of the 21st

century Information Technology in the context of international integration.

2. RESEARCH PURPOSES

Propose the principles, organization methods, and project-based instructional process with e-Learning support in college degree IT training to improve the quality of learning and to develop academic skills. Cooperation for students.

3. RESEARCHER

The process of teaching IT at colleges.

4. RESEARCH SUBJECTS

The IT-based teaching process is supported by e-Learning at colleges.

5. SCIENTIFIC EXPERIMENTAL

If the principles, methods and organization of the project-based teaching-learning process are proposed, the e-Learning support will be improved in accordance with the training process. College level will improve the quality of learning for students.

6. RESEARCH TASKS

- Identify the scientific basis for project-based Teaching and collaborative learning in e-Learning environments.
- Survey on the status of teaching methods used in college-level information technology training at some colleges in Ho Chi Minh City.
- Design of Project-Based Learning (PBL) with e-Learning Support in Training for College-Level Information Technology and PBL Module of Analysis and Design of Information Systems with Support E-Learning support.
- Experimental pedagogy.

7. RESEARCH SCOPE

PBL research topic in IT training colleges and e-Learning project design in the module "Analysis and design of information system". A survey of current situation in some colleges in Ho Chi Minh City. Experimental organization conducted at the Ly Tu Trong Technical College in Ho Chi Minh City. HCM.

8. RESEARCH METHODS

8.1 Methodology

- The approach to materialist historical and dialectical materialism.
- System approach.
- Targeted Output Approach.

8.2 Research Methods

Methodology of reasoning.

Research methodology:

- Method of investigation.
- Observation method.
- Experimental method of pedagogy.
- Statistical mathematical methods.
- Case study methodology.

9. STRUCTURE OF THESIS

- The science base of project-based teaching with the support of e-Learning in IT training at colleges.
- Organize project-based teaching in college degree ICT training with the help of e-Learning
- Experimental pedagogy.

10. LEGAL GUIDELINES

- PBL, with the support of e-Learning in IT college degree training, is important to build the PBL process with e-Learning support in line with the IT training program to reach the target. Student output standard (ST).
- Exploiting the functionality of the e-Learning system to manage learning projects can be deployed in IT training.
- PBL in IT training is suitable and with the support of e-Learning will develop the skills of studying collaborative ST in the learning process and improve the quality of learning for students.

11. NEW POINTS OF THESIS

- To identify the scientific basis of the nature of PBL, PBL in IT training college degree with eLearning support with 3 IT application models and the design of the PBL process in five phases. In addition, the thesis analyzed the CDIO-accredited training program in accordance with PBL in order to reach

the IT professional qualification standard for IT college technicians for ABET.

- The thesis has initially sketched the general picture of the status of PBL in IT college training.
- Based on student characteristics analysis and IT college curriculum, it was determined that PBL could be implemented in the module Analysis and Design of Information Systems and Software Engineering is suitable for the weak New element of e-Learning support.
- Build a learning project management environment using Moodle functionality , With learning projects designed with practical content, to the capacity of managing information systems in the areas of education, healthcare, human resources, services, e-commerce, accounting .
- Developed an 8-chapter Moodle tutorial and an online survey creation guide with a free 24-page Google Docs tool.

Chapter 1. SCIENTIFIC BASIS OF PROJECT-BASED LEARNING WITH E-LEARNING SUPPORT IN INFORMATION TECHNOLOGY COLLEGE DEGREE TRAINING

1.1 Overview of research issues related to the topic

According to Michel Knoll, the term "Project" in teaching was used initially in Italian vocational schools in the late 16th century, and then used in France. In the United States, the idea of "learning by doing", John Dewey, William Heard Kilpatrick emphasized that practical than theoretical important role of teachers must be the "guide" has the ability to create learning environments training, understand the content of projects and students to help them understand. On the benefits of PBL, John Thomas, Thom Markham has said that students will increase attendance, improve self-reliance, efficiency and promote learning skills In Vietnam, some educational projects mention project-based teaching methods such as the Future Teaching Project sponsored by Intel Corporation and the Vietnam-Belgium Cooperation Project. The number of authors in the country such as Nguyen Van Cuong, Nguyen Thi Dieu Thao has research on project-based teaching but is considered as an active teaching

method in training teachers or extracurricular courses for students but not with merit. Which is in the form of teaching PBL research with the support of e-Learning to meet the demand for human resources in the 21st century.

Hence the dissertation is studied PBL with the support of e-Learning in the field of human resources training Information technology as a form of teaching to contribute to improving the quality of training and development of academic skills Work for students to meet social requirements in the context of international integration.

1.2 Some basic concepts

1.2.1 Project-based and project-based learning

In this thesis, we consider PBL to be the kind or teaching strategy in which learners conduct learning through learning projects that have the advantage of enhancing practice, work experience, and value experience. The society in cooperative relations, the development of the capacity to solve practical complex problems, the sense of responsibility and the ability to collaborate on the work of learners

1.2.2 e-Learning and Blended Learning

E-Learning is the distribution of activities, processes, and events of training and learning through electronic means such as the Internet, intranet, extranet, CD-ROM, video tape, DVD, TV, Individuals.e-Learning consists of two main components: an online learning management system that manages and distributes course content to students and a lecture content delivery system that provides software support to teachers. Create course content.

Blended learning is the combination of content, methods and teaching methods between different learning forms to optimize the strengths of each form, ensuring the effectiveness of education achieved is the highest.

In this thesis, e-Learning is seen as an online learning management system and distributes course content, learning materials to students in a B-Learning style of classroom learning (face to face) and provided learning resources online.

1.2.3 Cooperative learning

Cooperation is understood as the willingness of individuals to work together equally in a team. Team members conduct their activities for the common good and common interests and at the same time achieve the goals and interests of each member on the basis of a concerted effort. Individual activities in the process of participating in the work must follow certain principles and have a specific assignment of responsibilities to the members of the group.

1.2.4 Project based learning with the support of e-Learning

A teaching strategy in which learners conduct learning through learning projects that integrate each stage of the project with the provision of online learning resources to students. PBL with the support of the e-Learning will have the characteristics of integrated PBL and added some new features by e-Learning system brings. The e-learning project is an e-Learning-supported project whose tasks, processes and results are reflected and managed in an e-learning environment.

1.3 Characteristics of project-based teaching with the support of e-Learning

1.3.1 Characteristics of PBL with the support of e-Learning

The essence of PBL is a complete and harmonious combination of learning styles: learning by imitation, learning by doing, learning by value experiences, learning by reasoning and learning styles. Learners rely on the eight forms of wisdom taught by H. Gardner. Based on Thomas JW's judgment on the PBL specification, combined with an analysis of learning activity in an eLearning environment can offer the following characteristics: Briefly oriented; High self-study ability for learners; Bringing together the ability to work collaboratively in teams; Bring the ability to work with the product; Bringing learner oriented interests; Integrative; Be flexible, suitable for learners; It is oriented to develop learner capacity.

1.3.2 PBL in IT college degree training with the support of e-Learning

Criteria for selecting the contents of the IT training program

-The themes of the learning projects associated with the IT industry. The topic of the project will bring a lot of excitement to

students when they realize that students will learn many valuable lessons during the project implementation as it is very close to the practical practice of the learner.

- The content of the learning projects must bring a high degree of integration, related to many fields, subjects. At that time, only PBL brought the learner many benefits worthy of the accumulation of learning experience, only PBL solve the problem and bring the final product for the learner to experience.

1.3.3 Evaluation in PBL

- Evaluate the process of each stage of the students to implement the teaching project in order to contribute to assess the students' capacity and cooperative learning capacity. Evaluation may be self-assessments by teachers and teachers.

-A final evaluation. The form of assessment is done at the end of the module, which is the end of the project implementation process. With e-Learning, teachers and students can create e-learning records in the assessment process.

In short, the support of e-Learning has enhanced the ability to control and improve the assessment process as well as self-assessment of students. Indeed, the individual learning process is strictly controlled and evaluation will occur at all times of the learning process. E-Learning also has the ability to save the results for a long time, the results are completely honest and objective, students can grasp those assessments and the students themselves can Be aware of the quality of their learning.

1.3.4 Classification of learning projects

The learning project can be categorized according to the following criteria: Sort by professional; by learner participation; by teacher participation; time limit; according to learning tasks; Classify by the complexity of the learning content.

1.3.5 Role of teachers and students in PBL with the support of e-Learning

Teacher (T) assists students in carrying out project tasks by identifying appropriate activities that are relevant to their ability to shape their learning goals with increasing difficulty. Teachers guide students to self-evaluation, promote autonomy of students in solving the content of the lesson and create a learning environment

that promotes collaborative learning of students. T is the person who chooses the e-Learning system suitable for the students, know the PBL organization according to the process and design the learning projects in the e-Learning environment. Teachers must manage their learning and self-study as well as evaluate the process and evaluate the results of students.

Students in the PBL with the support of e-Learning must be members of the learning group, participate in discussion of other group topics and participate in the E group process. Students must be proactive in teamwork to accomplish common tasks. Students self-direction in learning, self-learning content theory was provided by teacher through e-Learning system.

1.4 The ability of IT college graduates to meet the standards of the Accreditation Board for Engineering and Technology (ABET)

By analyzing models of competencies and competency standards of countries, it is necessary to demonstrate the competence of IT technicians to have the common features of analyzing and designing information systems and Self-learning ability and communication ability.

1.5 Characteristics of cognitive performance of college students and college students in IT college education.

The characteristics of PBL are consistent with IT college education requirements through the ability of ABET students and countries around the world. Particular attention should be paid to the development of collaborative learning skills for students in order to develop learners' ability to meet human resource requirements in the context of international integration and the 21st century's educational development trend. .

1.6 Apply learning theory in PBL with the support of e-Learning

1.6.1 Choice theory: *We should enhance the active learning cooperation among team members in all steps of the project implementation process. When discussing, learning, working together, we must respect the principle of mutual respect and cooperation. Teachers need to apply this theory to grouping, group discussion to achieve the quality of learning well. PBL takes this*

view as the basis, uses the organization of learning together, exchanges friends and shares it to satisfy the needs that make up the learning engine for the learner.

1.6.2 Positive social interaction: *For instructors, it is possible to apply coordination, influence learning groups, and take management measures to evaluate the learning outcomes of each team member. For learners, it is important to understand if a member of a noncooperative group makes the group difficult.*

1.6.3 Tectonic theory: *Students under the guidance of teachers, together to discuss, exchange, together to build collective learning. In the study collective, they investigate, criticize the types of arguments, views, assumptions ... internal discussions before and themselves argue the views of individuals, then together discuss and agree In this learning environment, the mind and the mind of the students are resonant, learning skills are developed and together accomplish the "creation" of new knowledge.*

1.6.4 Theory of cognitive development: *For PBL, students are exchanged, discussed, discussed, shared ..., they will directly affect the "latest development zone", helping them together to learn and develop better, avoid the case. a ST development and others do not develop because the impact of the teacher teaching too difficult or too easy for them.*

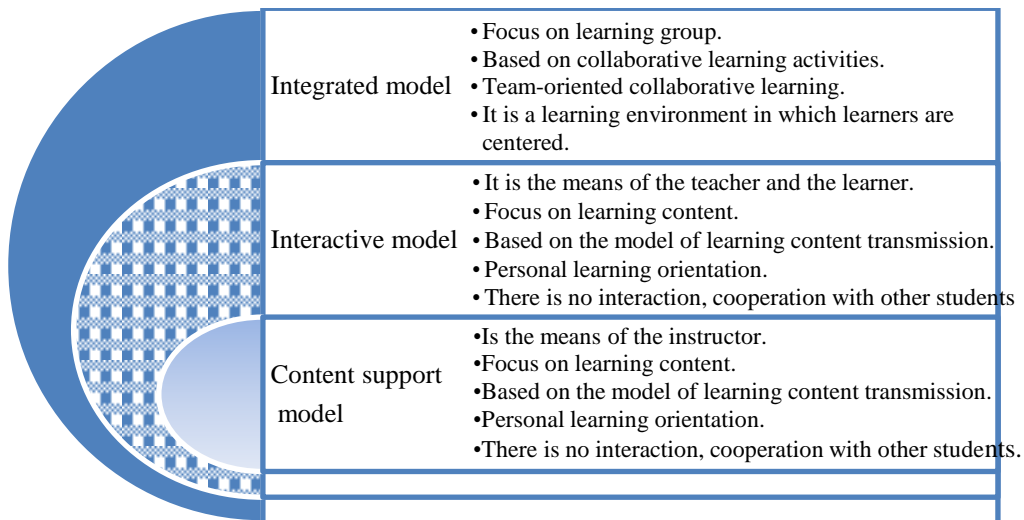
1.6.5 Connection Theory: *For instructors, the design of courses in e-Learning environment should be noted in the direction of dividing into modules and decentralized into smaller units that will help learners to flexibly and develop the capacity of the e-Learning. Relatives, based on their existing experiences and knowledge.*

1.7 IT Application Models in PBL IT Training College: *The dissertation will build on three models of IT application that support content, interaction and integration and in the process of collecting information and finding ideas, implementing projects, reporting and evaluating project results. However, the application of IT in the learning process of collaborative learning groups during the implementation of the learning project has not been studied and is still quite new. This thesis will design a management*

interface to integrate project management in an e-Learning environment.

The new capabilities of PBL with the support of e-Learning

- ST is supported in a variety of ways through tools in the e-Learning system (Forum, Chat, Wiki, Workshop ...) to achieve the objectives of learning content.
- T provides feedback or quick answers as quickly as possible to students, their results, their discussions published on the system, as well as their project plans.
- If students can self-project the project according to the students' perceptions and interests. Each student or group of students may choose a project that suits their interests or replace the alternative project taught by the teacher to match the cognitive differences, preferences, and interests of the student. ST .
- Self-study, self-learning makes the teaching process more personalized for students.



1.8 PBL Process in IT College Training

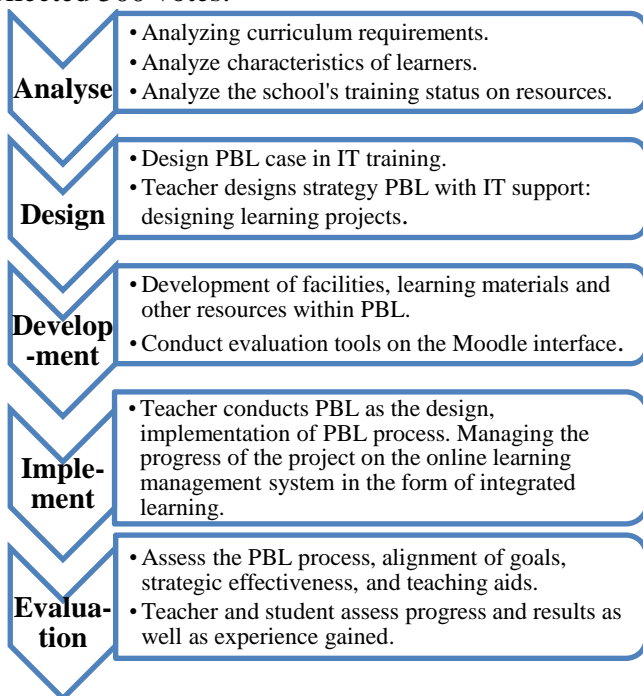
From the perspective of approaching the CDIO model (Conceive Design Implement Operate) in the development of ABET-oriented training program.

Table 1.2 Distribution of PBL in curriculum based on the CDIO model

Modules in PBL	Period	Conceive	Design	Implement	Operate
Office / Web design	2			X	X
Analyse and design information system	3	X	X		
Software Technology	4		X	X	
Final year	5	X	X	X	X

1.9 Survey the current status of using forms and teaching methods at some colleges in Ho Chi Minh City. Ho Chi Minh:

Data collected were processed by SPSS 18 program in Windows environment. The number of questionnaires was 235, with 212 votes. The number of votes was 560 when surveying the student object, collected 500 votes.



PBL process with the support of E-Learning in IT training
 It is necessary to develop the principles and design of the PBL process with the support of e-Learning in accordance with the characteristics of the students and show the outstanding advantages

of The ability to promote the positive learning of students that this teaching strategy.

1.10 Conclusion chapter 1

PBL, with the support of e-Learning as a teaching strategy in which students conduct their learning through e-Learning-managed learning projects; A theoretical framework for the implementation of the learning project, assessment process and organization of the PBL has been developed following the five-phase analysis - design - development - implementation - evaluation.

Chapter 2: ORGANIZING PROJECT-BASED LEARNING IN INFORMATION TECHNOLOGY COLLEGE DEGREE TRAINING WITH THE SUPPORT OF ELEARNING SYSTEM

2.1 Principles of design processes in IT training PBL College degree

2.1.1 Principles ensure system: *Progress PBL with the support of the e-Learning should be structured in order to ensure the scientific system of teaching process.*

2.1.2 Principles ensure learners turned positive: *On the basis of such theories in Chapter 1 PBL analyzed, teachers should focus on the direction of ST excitement when cooperative learning groups, enabling ST promote self-reliance, initiative and explore through organizational forms PBL.*

2.1.3 Principles ensure practicality: *In training college level IT project topics associated with the practical issues are projects related to capacity management information systems in the field , for education as management training, points; for human health as sobenh lake; for personnel wages, for service; for e-commerce; for accounting ... This helps students strengthen skills to apply knowledge into practice and thinking power, creativity.*

2.1.4 Principles ensure integration: *In each project, students create new knowledge through theoretical self-study through the learning materials with the help of teachers and classmates, gain skills through practical experience associated with social reality in order to achieve the mission objectives of the project proposed.*

2.1.5 Principles ensure participation: *PBL for ST Information Technology sector, teachers need to study the construction of combined learning environment (Blended Learning). Also, PBL also need to address the coordination of activities between schools and businesses.*

2.1.6 Principles ensure cooperation: *Objective PBL can cause ST self outlined in the implementation plan for each stage of the project completed last academic content of the project, project implementation plan , criteria for evaluating individual and group project in which the requirements of academic cooperation to strengthen the training students.*

2.1.7 Principles ensure development: *Measures IT applications in PBL must be built on the basis of the development of technology applications in line with the development of infrastructure and strategies Schools the school's development .*

2.2 Build e-Learning environment to support PBL

2.2.1 Features of the e-Learning environment to support PBL With e-Learning environment, designed to ensure conducting two objectives: (1) Provide content for students learning self-study; (2) Environmental management module PBL ADIS process and collaborative learning of students.

2.2.2 Building Environment provides learning content for students self-study analysis design information systems (ADIS) module in the e-Learning System

Step 1: Analysis of the factors related to the construction of the course. Analysis course content; Analyze the requirements for curriculum, learning objectives, learning content; Analyzing the characteristics of students; Identify learning goals of each chapter.

Step 2: Design. Design learning situations, test criteria to help students self-evaluate. Interface design courses.

Step 3: Develop. Software selection support for editing the contents of each chapter, develop learning materials, development of tests using the tool tests in Moodle.

Step 4: Implement. Conduct guiding students to use course content planned PBL; T process management using this course, observing the students' self-learning, learning management support.

Step 5: Review. Product testing is a necessary step, to fix any errors that occurred prior to use.

2.2.3 Develop process management environment PBL Design modules Analysis Information System

2.2.3.1 Goals - Contents

T interface created to manage the process PBL, the students create projects that include: **Name of theme; Project objectives; Project Manual; Collect information; Presentations; Rating .**

2.2.3.2 Process conducted

Step 1: Analysis of the requirements management process and content PBL Analysis module design information systems. Analyzing the characteristics of usability ST IT meet the goal.

Step 2: Design. Design some key activities in process management PBL Analysis module design information system with the support of the e-Learning

tool used in PBL integrated in Moodle	time	Phase of the project
- Topics; -Project objectives	week 1 to week 3	Define the project name, mission, goals.
Journal	week 1 to week 3	Building content, implementation plan
Collect information	week 4 to 13	Implementation project.
Presentations	week 14	Product of the project.
Evaluation	week 14 to 15	Report of the project. Project Evaluation.

Step 3: Develop process management interface

T interface designed to work with the theme of the project, maximum 1 5 screen project themes, each theme includes key functions such as *theme name; Project objectives; Project Manual; Collect information; Presentations; Notable; Forum discussions; Check*

Step 4: Implement. Guidance teachers, students use the product. (Details presented in Appendix 8).

Step 5: Review. Product testing

Design some key activities in PBL with the support of the e-Learning

Number	Stage of project	Period	Main active
1	Instruct students on project-based learning and the form of assessment	Week1	Video
2	Find ideas related to reality, ensuring the principles of PBL .	week 1 to 2	Brain storminh, Internet links, youtube.References,
3	Define tasks and objectives of the project.	week 1 to 3	argument in classrooms; Online discussions; Forum; Mind map;Wiki
4	Building content, the project implementation plan.	week 1 to 3	argument in classrooms; Online discussion; forum; Mind Mapping.
5	Project implementation.	From week 4 to week 13	argument in classrooms; Online; Forum Start working on the project management interface.
5.1	Survey the status quo and determine the requirements of the information system	From An 4-5	argument in classrooms; On the net; Forum.
5.2	Report midterm.	From An 6-7	argument in classrooms; Online; Forum.
5.3	Analysing System	From An 8-10	argument in classrooms;Online; Forum.
5.4	Design System	From An 11 Until week 13	argument in classrooms; Online; Forum.
6	Submit product project.	From An 14	
7	Report on the project summary.	week 14 to week 15	Discussions; Discussion in class;PP discussion online, Forum
8	Project evaluation. Evaluate the project on the machine	week 15 week 14	Rank in class. Discussions, Forum; Chat; vote

Design techniques used in PBL with the support of the e-Learning

some key activities in PBL	description	Tool in Moodle
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Make a question Interview.	Collect information stored customer requirements.	Tool: Wiki, Forums, Chat, Survey.
The survey information.	Collect information strikes the information management systems of the project.	
Brain storming.	Collecting, select ideas.	Tool: Wiki, Google, Forums, Chat, Blogs
develop more ideas	Mapping	Mind Manager software
working group drafting the project.		Powerpoint, Wiki
surveys, collect information of the file system to the status quo.	Collect customer information strikes, surveys the current state of the system.	Ms. Word, Wiki ; Esurvey Google docs
project plan.	kind of tasks, duration and expected product.	Ms. Word, Wiki.
discussion group work project implementation, exchange of information.		Forum, Chat.
Submit product project.		
Report on the project summary.	For personal opinion on the matter.	Vote

Design some key activities in PBL with the support of the e-Learning

Number	Main activities	Teaching method	Tool
1	Named of project	Discussion; Presentation Problem solving	wiki
2	Define the list of project tasks	Discussion; Problem solving	wiki
3	Finding project of information	Discussion; Problem solving	Google Search
4	Project Goals	Discussion; Problem solving	wiki
5	Journal	Discussion	Forum, Chat

6	Collect information	Discussion; Problem solving	Forum, Chat
7	Feedback	Discussion; Problem solving	News
8	written report		wiki
9	Assessment of the project	Discussion; Problem solving	Workshop

Design and technical measures to PBL under 3 model IT application

Selected the topics and define the purpose of the project		
Content of support Model	Interactive Model	Integrated Model
- Use your e-books, e-library to find information; Use video to suggest practical problems can actually; Use presentations for instructions on how to do the survey using <i>MS. Office</i> for word processing; naming the subject.	- Mind Map software application to draw diagrams of thinking. - Use software <i>CamStudio</i> for editing, recording outside the life issues, using the media (<i>youtube</i>) to discover ideas and orientations few actual topic.	virtual focus group online through social networking sites (<i>Facebook, Twitter</i> ..); personal email, blog; on Moodle (<i>Forum, Chat</i>) T use items <News> to notice; use <Event> to the period for discussion and submitted name subjects, themes.
Building plan		
-Using electronic lectures to show students how to plan. Using <i>Mind map</i> to illustrate.	ST using <i>MS Project, MS Excel, MS Word</i> to draft plans ...	Tool ST <i>Forum, Chat</i> interface on <i>Moodle, Facebook</i> for discussion. ST email to exchange information.
Implementation Project		
Using <i>Adoble Presenter 7, eXe</i> to compose sermons.	- Students use the Internet to survey information, gather information, analyze the current state of user de.-Team ST <i>SPSS</i> to analyze the ST lieu.- used <i>MS Excel</i> for graphing thi.- ST used <i>MS Project</i> to	- compose and perform online surveys Internet (<i>eSurvey Use, Survey Monkey, Google docs</i> ...) - T users on Moodle tools to guide students perform <Vote>. -T Frequency control project participants with <Report>, see <Diary

	manage the progress of implementation of software used an.- ST <i>Illustrator</i> , <i>photo ProGold</i> to store active picture albums in the process of making plans to use the software an.- ST <i>Power Designer</i> to drawing application software do.Dung other.	<i>Save</i> >. ST ST group replies to the email, via the tools in Moodle.- use < <i>Wiki</i> > Project to bring information into Moodle.- use < <i>Manual diary</i> > to record the process of project implementation and track progress.
Announce the product		
- Using electronic lectures to show students how to the publication criteria, assessment and self-assessment group.	-St to use Power point presentation; - St different software used to test products; -St Use <i>Photo ProGold</i> to report operating picture albums in the course of the project.	- Moodle < <i>Event</i> >. -T Monitored by < <i>Diary Save</i> > .-ST Group uses Moodle for submission < <i>Submit the product</i> >. < <i>Vote</i> >.
Evaluation Project		
- <i>MS. Excel</i> to store, calculate points.		<i>Email, Forum</i> ; < <i>Vote</i> > in Moodle to assess; ST Group self-evaluation and mutual evaluation.

2.3.3 Phase 3: Development of means, materials and other resources in PBL with the support of the e-Learning

- Teachers use ICT to develop, compile documents and materials to provide learning materials.
- Conduct drafted assessment tools in the Moodle interface.

2.3.4 Phase 4: Deploy PBL with the support of the e-Learning module ADIS

- T PBL conducted as teaching plan outlined, ie by 5-phase project implementation. T efficient exploitation management system training and implementation of teaching in the form of learning combined.
- Step 1: Identify the themes and objectives of the project. Step 2: Develop project plans; Step 3:

Implementation of the project; Step 4: Report on the results of the project; Step 5: Review Project

- Implementation period: 15 weeks, 3rd semester 2nd year.
- Classroom: 45 hours. Self-study: 90 hours

Step 1: Identify the themes and objectives of the project.

- Objective: Students identify the project name, goals and project products.
- Implementation time: 2 weeks. 6 classes and 18 more on the self-study period.
- Teaching methods: Discussion in class and on-line group: PP of the brain; Presentations raised the issue; Conversation.
- Review of Phase 1: The objective of the project; The discussion questions online. The mind map.
- Requirements for vehicles, facilities: Projector, Computer, Powerpoint, Internet. T Webmaster e-Learning, provided account and password for students; ST have an account registered to use the keyword "Analysis and design of information systems". Students have access to participate in the courses, get study materials.

Step 2: Develop project plans

- Objective: Develop project plans include the following details: The name of each member of the group, the name of the task, the need to complete, time taken on paper, the deadline for submission to the machine.
- The plan must reflect the mission of the project: (1) Find out file systems, supporting software. (2) Survey of the status file system groups selected topics; (3) Analysis Information System; (4) Interface Design
 - Duration: 1 week. 3 more details on classes and self-study 9
 - Expected results and evaluation phase 2:
 - Table planned implementation of the project.
 - Content stored on the forum discussion
 - The scheme is the result of thinking discussed
 - Course content "File systems analysis and design" on e-Learning.

Step 3: Implementation of the project

- Project Objectives: Surveying the status file systems; Analysis system. Information system design.
- Duration: 10 weeks. Includes 30 classes and 90 more on the study.
- Expected results of Phase 3: questionnaire table and interviews to gather the status management information. The combined entity model ERD, BFD relational models, organizational models .

step 4: Report on project results

- Objective: Each student team project reporting products, the implementation and results evaluation duoc.ST join other groups in class and at home.
- Time: 2 weeks
- Expected results of Phase 4: The report of the project by Powerpoint; Writing the final report on the project; Is the project.
- Assessment Phase 4: Evaluation form presentations and product screening forms.
- Requirements means: Projector; Table, writing, A4 paper, Accounts on e-Learning.
- **Step 5: Review Project**
- Objective: Evaluate the students' project-based learning.
- Duration: 14 weeks - 15 weeks.

2.3.5 Stage 5: Evaluation modules PBL ADIS

Use the evaluation form for students: observation checklists, self-assessment panel presentations, product rubric of student projects. Teachers need to conduct a survey to assess the effectiveness PBL. T based on the results of experimental teaching, assessment and conclusions.

Recommend 6 threads situations PBL

Topic 1: The topic of file systems for business management, invoicing for commercial centers, business sales.

Topic 2: The topic of file system to service: hotel management services.

Topic 3: The topic of file systems in the fields of entertainment services: information management and service revenues video rental.

Topic 4: The topic of file systems on commercial financing: business management, invoicing for commercial centers, business sales.

Topic 5: The topic of file systems of education: school management.

Topic 6: The topic of file systems on wages: management staff salaries.

2.4 Developing assessment tools in PBL.

- Evaluation process by 50%. (Percentage interim report 20%; 10% attendance, observing online collaborative learning 10%, 10% class discussion).
- Final test: 50% (statement of the project's products, judged by the criteria).
- The evaluation form
- Observation of the counting process of collaborative learning activities for teachers.
- The review process of project implementation.
- Stock assessment project reports.
- Product evaluation form report summarizing the project implementation process.
- Synthetic rubric project results.

2.5 Conclusion Chapter 2

On the basis of analyzing the characteristics of students and training programs, have identified organizations PBL for ADIS and Technology module is suitable software. PBL process with the support of the e-Learning module for ADIS with the activities of teachers and students in the classroom and self-study phases will help teachers easily manipulate the process PBL designed sensibly. T can built environment project management e-learning through the use of the functionality of the e-Learning system.

Chapter 3: PEDAGOGIC PRACTICE

To achieve pedagogical experimentation, conduct pedagogical experimentation and case study methods. Conducted 22 experimental projects.

Round 1: will be conducted in the 2012-2013 school year for 2011 students on a number of learning projects for the experimental and control classes.

Round 2: builds on the results obtained through the first round effect experiments, conducted on a larger scale, the scope of the project more.

Analysis of quantitative results

The t-Test independent of the test results of the two experimental and control groups yielded a $p = 0.0008 < 0.001$ result showing the difference in mean scores between the two experimental and control layers. The control is very meaningful. This difference demonstrates a real change in scores when applying PBL with the support of e-Learning in teaching the module Analysis and Design of Information Systems. Therefore, accept the choice hypothesis, that is PBL with the support of e-Learning in teaching the module Analysis of information system design has improved the learning outcomes of students.

- Regarding the cognitive level of the two experimental and control classes, after the effect of the cognitive level of the experimental group was higher than that of the control group, the mean of the experimental group was lower than that of the control group. Well aware, good).

- Impact factor $SMD = 0.82$ ranged from 0.80 to 1.00. Thus, according to Cohen's criteria, the magnitude of the impact of the intervention is large.

Empirical Analysis of qualitative results

Along with quantitative evaluation, qualitative evaluation through formative assessment through observation, through the

project log and reporting of students in e-Learning. Perform poll votes for ST with 513 Students of colleges in the city. HCM for more factual information on the positive impact of cooperation with academic skills.

Case Study Method

The evaluation criteria in PBL process with the support of the e-Learning system are: (1) Name the topic, the project; (2) Find references; (3) The survey by questionnaire; (4) Plan implementation; (5) Working group on the network; (6) Discussion groups outside the classroom; (7) Record the results, the implementation schedule; (8) Data processing, information collected; (9) Product Reviews of other groups; (10) Product Presentation for class evaluation; (11) Reviews of other groups. (12) To assess the level of development cooperation study skills with the support of special IT interface management system Moodle online training.

Conclusion Chapter 3.

Findings shed light PBL with the support of the e-Learning training in colleges across IT projects ADIS learning module is feasible and will contribute to improving the quality of learning by increasing development collaborative learning skills in students.

CONCLUSIONS AND RECOMMENDATIONS

In theory, the thesis was to identify the scientific basis of the characteristics of PBL with the support of e-learning, codifies the basic theoretical issues and build relevant theoretical frameworks; Determine the capacity of students college level by the standards of the IT industry with the characteristics ABET cognitive activities of students. Stated thesis is the application of academic theory into 5 teaching process based on the project with the support of e-Learning, building 6 PBL principles and processes with the help of e-Learning. Determination can proceed into a module analysis and design of information systems and software technologies as appropriate.

In practice, the thesis was assessed overall picture of perceptions, goals and level of use PBL quite profound and reflects the real situation in the training colleges PBL IT. Construction project management environment through the use of learning the functionality of Moodle, with projects linked to practical learning in the areas of education, health, services. Construction is the documentation of PBL with the support of e-Learning. From the above results, the thesis has the following recommendations:

First, capacity building of teachers in active teaching PP in general and in particular PBL; The second is to strengthen the capacity of IT application in teaching, training and guidance for teachers using the software support for the deployment of an effective DAHT; Third, fostering method of project for students learning by compiling and disseminating documentation related to the self-study training and learning techniques for students; Fourth, innovation in assessment of student learning outcomes, rather assess the results into evaluation process, evaluate the effectiveness of teamwork and self-study assessment of students; Fifth was focused on curriculum innovation, compiling textbooks; Sixth is the upgrading of laboratories, increase investment in new teaching equipment, workshops, modern classrooms; Seventh is to enhance capacity building of teachers in scientific research and students in order to strengthen the capacity for teacher educators.

LIST OF SCIENCE WORKS RELATED TO THESIS

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