

Applying Project-Based Teaching Method In Teaching Web Programming Subject At Vietnam - Korea University Of Information And Communication Technology - University Of Da Nang

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Abstract: In the current context, innovating teaching method is one of the important factors that help improve the quality of education and training. Project-based teaching is a form of teaching that is both collaborative and highly practical, and is one of the innovative teaching methods in which the learner is the subject of the learning activity. Participate in activities related to real-life situations, experience, observe, discuss and solve problems according to your way of thinking. From there, students will gain new knowledge, skills and develop their creative potential. This article will present some theories related to project teaching and apply this method to teaching the Management course at Vietnam - Korea University of Information and Communications Technology, University of Danang.

Keywords: Method, Methodology innovation, Method of teaching, Project based learning.

Date of Submission: 11-05-2024

Date of acceptance: 23-05-2024

I. INTRODUCTION

Traditional teaching methods seem to be old and familiar, so it is difficult to change immediately. To innovate teaching methods, it is necessary to be proficient in information technology and grasp modern teaching methods to help teachers use a variety of different teaching methods. To test, evaluate, and access the knowledge, skills, and psychology requirements of students when teaching. With a modern approach, it helps learners promote positivity and initiative in creativity and creates a basis for learners to update standard information and knowledge. Many studies have shown that active learning significantly increases students' ability to absorb and apply lessons.

The term project, in English "Project", is understood in the common sense as a project, a draft or a plan, which needs to be implemented to achieve the set purpose. The project concept is commonly used in most socio-economic fields and in scientific research. After that, the project concept went from the economic and social fields to the field of education and training, not only in the sense of educational development projects but also used as a form or method. teaching. In the early twentieth century, American educators built a theoretical basis for the Project Method and considered it an important teaching method to implement a student-centered teaching perspective. center, to overcome the disadvantages of traditional teacher-centered teaching. Initially, the project method was used in practical teaching of technical subjects, and was later used in most other subjects. However, with social subjects, especially subjects in the field/major of Business Administration, in addition to being equipped with professional knowledge, learners need to improve their skills, attitudes, and learning style. professional training. To be able to meet the requirements of businesses after graduation, it is necessary to participate in practical projects during the learning process at school. Introducing the project-based teaching model into the Management course is a suitable solution to help learners approach real-life situations similar to working, requiring learners to actively participate. Research, explore and solve problems systematically, thereby drawing appropriate knowledge, skills and experience for yourself.

II. CONTENT

2.1. The concept of project-based learning

There are many different concepts and definitions of project teaching. Many authors consider project teaching to be an ideology or a teaching perspective. Some people also consider it a form of teaching because when implementing a project, there are many specific teaching methods used. However, project teaching can also be considered a complex teaching method. Project teaching is a form of teaching or complex teaching method in which, under the guidance of a teacher, learners acquire knowledge and form skills through solving a case study (projects) are real in life, follow the curriculum, combine theory with practice and create specific products.

According to K. Frey, a leading scholar on project teaching in the Federal Republic of Germany: "Project Based Learning (PBL) is a form of learning activity in which groups of learners Identify a work topic, agree on a work content, plan and carry out work to a meaningful conclusion, often resulting in a presentable product According to the project, it emphasizes the role of the learner."

According to the definition of the Singapore Ministry of Education: "Project work is a learning activity that creates opportunities for students to synthesize knowledge from many fields of study, and apply it creatively to real life".

From the above concepts, it can be understood that project-based teaching is a form and method of teaching that is learner-centered, in which learners, under the guidance and help of the teacher, solve a task on their own. Learning services are complex not only in theory but especially in practice, thereby creating products that can be introduced and published.

2.2. Classification

Project teaching can be classified in many different forms and bases, depending on the approach and project implementation process. Here are some main classifications:

a. Classification by expertise:

- Project within a subject: Includes projects within a subject.
- Interdisciplinary project: There is a connection between many different subjects
- Non-professional/curriculum projects: These are projects that are not part of the course curriculum, are extracurricular activities, outside of class time,.....

b. Classification by roject implementation time

- Small project: done during a number of class hours, maybe from 2 to 6 hours.
- Medium project: implemented over a number of days (also called project days) but limited to one week or 40 study hours.
- Large project: implemented with a large time budget, at least one week, can last for many weeks.

c. Classification by participation

- Classification according to learner participation: Individual projects, group projects, school-wide projects, projects for a grade level, projects for a class.
- Classification according to teacher participation: Projects under the guidance of one teacher, projects with the collaborative guidance of many teachers..

d. Classification by task:

- Research project: is a project to survey the current status of the subject.
- Research project: aims to solve problems and explain phenomena and processes.
- Constructive projects: focus on creating physical products or performing practical actions, to perform tasks such as decorating, displaying, performing, and composing.

e. Classification according to the complexity of learning content:

- Practical project: is a project that focuses on performing a complex practical task based on applying basic knowledge and skills learned to create a physical product.
- Integrative project: is a project with content that integrates many activities such as learning about practice, researching theory, solving problems, and performing practical and hands-on activities.

In addition to the above classifications, it is also possible to classify by specialization (subject projects, interdisciplinary projects, non-subject projects); according to learner participation (individual projects, group projects, class projects...).

- f. Classification by field of project activities:** Includes educational projects; Environmental projects; Cultural projects; Economic project.

2.3. Characteristics of project-based teaching method

2.3.1. Teaching through specific projects

PBL is considered a part of the teaching process, which means we will teach through projects, not teach and then carry out projects. To make this connection it is necessary:

- Relate project results to curriculum goals and learning goals: Teachers ask themselves questions: What do learners expect to learn from the project? How does this learning relate to the lesson outcomes? What other learning opportunities might this project provide?

Whenever designing PBL, think about curriculum and subject matter goals, but also include other goals related to learner needs (social and emotional skills).

- PBL integration: Teaching through projects not only involves relating project outcomes to curriculum and learning goals but also requires appropriate project integration from which will contribute to student learning. To do this, it is necessary to plan in advance for: the time needed for the learner to complete the project; Assigned roles; The types of choices offered to learners include the topic, expected outcomes, and

project implementation; How to narrow the scope of a project; Evaluation criteria, How to receive feedback; How to organize and evaluate projects.

Having made such decisions, we can begin to assign projects, clarify evaluation criteria, and provide guidance. This can be done at the beginning or at the end of the lesson. Support learners in connecting what they are learning or have learned in the lesson to the project so they can implement that learning as completing the project. Occasionally ask students how they are progressing with their projects. Listen to learners' questions and requests for help. Allow them to have classroom collaboration to complete the project. Take time to check in on progress, observe how learners interact and how each member contributes to the group and supports them.

By relating lesson objectives to project outcomes, students' learning will be connected to the project. In addition, it also helps students understand the value of those projects to the learning process, thereby making students more involved in learning.

2.3.2. *Connect the project to the real world*

Undertake projects that require learners to reflect, decide, collaborate, collect data, write, and more. Learners need to be motivated and engaged to take on such difficult work. This can only happen if they see the relevance of participating in the process.

To achieve this, base your projects on real-world problems to capture your learners' attention, stimulate their thinking, and motivate them to conduct research. Therefore, it is necessary to choose new, hot issues that are related to the lives of learners to be more attractive. To avoid a lack of connection to the real world, ask yourself: what do we want learners to remember from this experience 10 years from now? How does this relate to their future career?

When starting a project organized around a guiding question, ask learners to make a list of what they feel they need to know to successfully and completely answer that question. This will make learners more engaged with the project because it answers their concerns and questions.

2.3.3. *Promote learner autonomy*

In PBL, learners are responsible for designing and managing much of their own learning. Therefore, to support learners, teachers must develop more autonomy in learning: Below are a few ways to promote learner autonomy.

- We can choose the teams for the project ourselves based on our understanding of the learners. However, it will allow learners to choose the topics they like to work on, how they want to research, and how to present their projects (using Posters, PowerPoint, drawings, etc.)

- Assign interdependent roles to learners and mix them into groups. When group goals are tied to individual learning, group members will care about each other's learning and actively help each other. It is important to note that assigning roles is not meant to push learners to work individually but collaboratively even if their roles are different.

- Provide learners with several opportunities so they can review and modify the project for better performance. Provide a checklist to help them track project progress and see if the criteria are being met. Provide feedback instead of grading during evaluations to focus attention on the quality of the work rather than the person performing it.

- Evaluate each learner. Individual learning growth must be measured by each learner's achievement to ensure that everyone has an equal opportunity to succeed.

On presentation day, all members can be asked to share their work and talk about their experiences.

2.4. Proposing a process for applying project-based teaching methods in teaching the Web Programming course

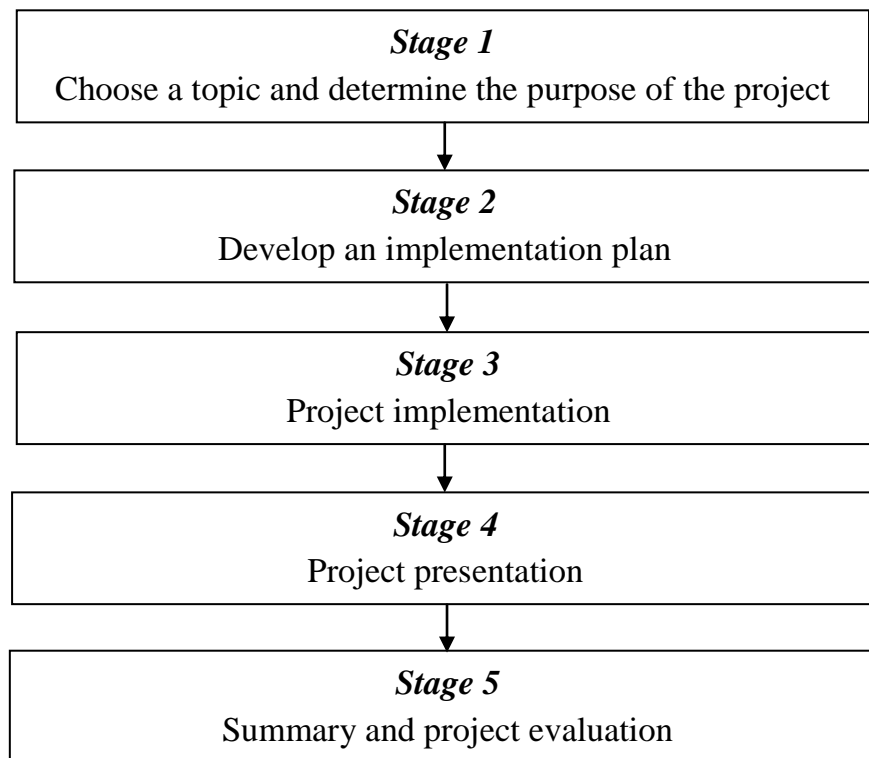


Figure 1: Stages of Project-based teaching

2.4.1. Project-based teaching implementation process

Stage 1: Choose a topic and determine the purpose of the project. Lecturers and students together propose and determine the topic and purpose of the project. It is necessary to set a task to be solved that is related to social reality and life. It is necessary to pay attention to the interests of learners as well as the social significance of the topic. Instructors can introduce a number of topic directions for students to choose and specify. In appropriate cases, the initiative to determine the topic may come from the student.

Stage 2: Develop an implementation plan. During this stage, with the guidance of the lecturer, students will develop an outline as well as a plan for project implementation. In developing the plan, it is necessary to determine the work that needs to be done, the expected time, materials, costs, methods of implementation and work assignment within the group.

Stage 3: Project implementation. Members carry out work according to the plans set out for the group and individuals. During this phase, students carry out intellectual activities and practical, hands-on activities, these activities alternate and interact with each other, from which project products and new information are created. .

Stage 4: Project presentation. The results of project implementation can be written in the form of harvest and reports. In many projects, physical products are created through hands-on activities. Project products can be presented among groups of students, can be introduced in school or in society.

Stage 5: Summary and project evaluation. Lecturers and students evaluate the implementation process and results as well as the experience gained. From there, experience can be drawn for implementing the next projects. Project results can also be evaluated externally. These last two phases can also be described collectively as the project closing phase.

The above division of stages is only relative. In fact they can alternate and interpenetrate each other. Self-inspection and adjustment need to be done in all stages of the project. For different types of projects, it is possible to build specific detailed structures suitable to the project tasks.

2.4.2. Evaluation method

Develop a set of criteria to evaluate project implementation results related to the following contents:

- + Project products: Powerpoint presentations, Website, videos...
- + Effectiveness of group work and individual work.
- + Project implementation process: assign tasks, develop outline, collect information, perform tasks...

Groups evaluate each other based on approved evaluation criteria
The instructor summarizes the assessment and scores the groups.

2.4.3. Suggested topics in the WEB PROGRAMMING subject to apply project-based teaching methods

PROJECT NAME: Building an E-Commerce Website

Project summary: The explosion of the Internet and the increasing demand for online shopping are gradually becoming an inevitable trend of life. Every business needs to have a website to promote the business's image and products. Act as the person responsible for building an E-Commerce Website for the company. The group will carry out the project of building a website for Mobile World company within 3 months. The specific requirements of the Website need to be surveyed and evaluated before implementation. At the end of each month, present results to the Board of Directors/IT Department/Sales Department..., receive reviews, feedback, and update changes compared to the original requirements if any. After 3 months, the product will be accepted and evaluated.

The objective of project

- Building an e-commerce website to serve 1 million users in Vietnam
- Website must be in the top search results for product keywords that the company is doing business in.
- User interface must be simple and consistent with company culture.
- Users can easily search for information, products and services.
- Fast payment and return process.

The task of student

- Determining the company's requirements for an e-commerce website
- Identifying data sources, research tools, and approaches.
- Analyzing and evaluate requirements.
- Researching and selecting solutions suitable to requirements with time and human resources allowed.
- Designing solutions
- Developing a work progress schedule.
- Developing quality assessment standards.
- Determining product acceptance conditions.
- Developing reporting, evaluation and product acceptance plans.
- Carry out the implementation of designed solutions.
- Making implementation results Report
- Total evaluation.

Assigning task

Team leader: The team leader has the same roles and responsibilities as a project administrator. Plan, divide, and assign tasks to each team member. Monitor project implementation progress of the team in charge. Adjust the plan when there are developments that affect progress. Predict, manage possible risks and develop risk prevention plans..

Customer communication team: Responsible for collecting information and requests from system users. Design the basic interface to meet the test. Run product tests, receive product feedback requests from customers. Instruct customers to use the product.

System design analysis team: Providing technical proposals for customer requirements. Design system architecture, design detailed product functions.

User Interface Design Team: Designing user interfaces, ensuring the interface is easy to use. Appropriate colors and layout.

Programming team:

- + Responsible for learning about website programming techniques..
- + Learning about the system requirements.
- + Programming according to the designs of the system design analysis team and customer requirements.
- + Conducting basic tests after programming

Testing team: Responsible for testing whether products from the programming team meet the requirements set forth by customers and the design team.

Infrastructure team: Responsible for preparing and handling infrastructure requirements for the website to operate.

Secretary: Synthesizing information, recordign project diary.

Lecturers monitor the entire project implementation process and have sessions to evaluate project implementation results to draw out problems that have been achieved and need to be improved for the groups.

III. CONCLUSION

In teaching, when applying any new teaching method, the teacher must clearly understand the nature, characteristics and process of that teaching method, and be able to specifically visualize the teacher's activities, and corresponding activities of the learners, from which specific activity plans can be drawn up for a number of lessons and the plans implemented with serious observation, analysis, learning from experience and supplementation. Applying new teaching methods needs to be implemented and learned from experience regularly to be able to conclude about its effectiveness in real-life conditions. Students need to be more active and proactive to improve knowledge and skills; Lecturers need to establish regular communication channels to capture students' work progress in order to make appropriate assessments and adjustments. Besides, when applying the project-based teaching method to a certain subject or module, it is necessary to ensure that the method is suitable for that subject or module and is suitable for the training program, and at the same time, in The school teaching process should also have support for lecturers in terms of time and resources to apply this method effectively.

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