



PRIMARY RESEARCH

Development of project-based learning model to enhance educational media business ability for undergraduate students in educational technology and communications program

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Key Words

Project-Based learning
Educational media
Business ability
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Abstract. The objectives of this research were (a) to develop Project-Based Learning (PBL) model to enhance educational media business ability for undergraduate students in Educational Technology and Communications Program (b) to study students' educational media business ability (c) to compare the learning achievement before and after using PBL and (d) to study students' opinions towards PBL. The samples of this research consisted of 37 undergraduate students studying in Educational Technology and Communications at Naresuan University. They were selected by purposive sampling. The instruments used to collect the data were PBL lesson plans to enhance educational media business ability, assessment form of educational media business evaluation project, pretest and posttest, and questionnaires. Data were analyzed using percentage, mean, standard deviation, t-test dependent, and content analysis. The results show that (a) the PBL model to enhance educational media business ability consisted of five elements: 1) principle and objective 2) learner and instructor 3) contents 4) Project-Based Learning activities, and 5) evaluation. (b) the students' educational media business ability was at a high level through the process Project-Based Learning and projects work have the good to a very good level. (c) the students' educational media business knowledge posttest scores were significantly higher than the pretest at a level of significance of .05. (d) the students' opinions towards learning using Project-Based Learning were at the highest level. PBL leads to increased students' ability to achieve better learning and project outcomes.

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INTRODUCTION

Educational Media is a media for learning or teaching that is primarily aimed at producing the optimal combination of media so as to support learner. The education media work in different way and need different kind of alternative skills from the audience (Traffic Marshal, 2011). A media can bring a message and can be communicated to an audience. One way of identifying the right areas to use educational media is consider the components in the message that one wants to communicate, to analyze what the learner must hear and see and what he is expected to understand and remember. These components will make certain demands of the communication process itself and may possibly indicate suitable media (Unwin and Rav, 1978). Educational media cover a large number of different types of media. Media fall into a few major categories: text, image, video and audio. Text is the most common educational media type, and includes text books, worksheets and written

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notes. A secondary source, such as a textbook, is useful for summarizing and explaining content.

The educational media business ability is the combination of business skill and educational media which means the ability to do business on educational media and to create values for educational media by developing the media into commercial products or services. Business is the process of production, marketing, and service to gain profits in return. Business consists of 4 important parts: 1) Production which is the process of making materials and products, 2) Distribution which is the process of product sale, 3) Service which is the business activity that serves customer demands, 4) Profit which is the benefit that producers gain from selling their products after subtracting the cost of their production process. The potential high profit is a main factor attracting people to start their own business but the investment risk should also be considered. Educational media are any type of media used to educate someone on a topic (Reference.com, 2016).

PBL is an approach to instruction that emphasizes 'authentic learning tasks grounded in the personal interests of learners' (Grant, 2009). Project-based learning is an instructional method centered on the learner. Instead of using a rigid lesson plan that directs a learner down a specific path of learning outcomes or objectives, project-based learning allows in-depth investigation of a topic worth learning more about. Learning from doing complex, challenging and authentic projects requires resourcefulness and planning by the student, new forms of knowledge representation, expanded mechanisms for collaboration and communication, and support for reflection and authentic assessment (Erdem, 2002; Helm et al. 2001; Laffey et al. 1998). The Project-Based Learning will allow students to have in-depth understanding and integrative thinking that can be adapted for their own lifestyle. In this approach, the content of materials is meaningful to the students since they have been taken from their daily life and the real world around them (Kramer, et al. 2007). The project will challenge the students to think from the beginning until the end of the learning process when the students have to present the projects that they have created. The Project-Based Learning is a method that allows the students to conduct a research project using their accumulated knowledge. This method will stimulate the students to think, analyze, discuss, and find the methods to successfully complete their projects. A key strategy for creating independent thinkers and learners is through the Project-Based Learning. Students solve real-world problems by designing their own inquiries, planning their learning, organizing their research, and implementing a multitude of learning strategies. Students flourish under this driven, motivating approach to learning and gain valuable skills that will build a strong foundation for their future in our global economy (Bell, 2010).

In this study, in the course of project creation process, it has been endeavored to see whether there exist any effects of learning the educational media business, which have a more complex structure, with the project method on the prospective undergraduate students' learning or not; and if any, which project-based learning process is affected.

Research Questions

- 1) What should be the strategy involved in the development of Project-Based Learning model to enhance educational media business ability of undergraduate students in Educational Technology and Communications program?

- 2) How do the undergraduate students in Educational Technology and Communications program develop their ability in educational media business after using the Project-Based Learning?

- 3) How do the undergraduate students in Educational Technology and Communications program gain their knowledge on educational media business from the Project-Based Learning?
- 4) How does the Project-Based Learning model to enhance educational media business meet the satisfaction of the undergraduate students in Educational Technology and Communications program?

Research Objectives

The Objectives of this research were:

- 1) To develop Project-Based Learning model to enhance educational media business ability for Undergraduate Students in Educational Technology and Communications Program
- 2) To study students' educational media business ability
- 3) To compare the learning achievement before and after using Project- Based Learning
- 4) To study students' opinions towards Project-Based Learning to enhance educational media business ability.

Variables

A. Independent variable: Independent variable is the Project-Based Learning Model to Enhance Educational Media Business Ability for Undergraduate Students in Educational Technology and Communications Program

B. Dependent variable: Dependent variables are 1) educational media business ability of the undergraduate students in Educational Technology and Communications Program 2) knowledge on educational media business of the undergraduate students from the Project-Based Learning 3) opinions of the undergraduate students towards the Project-Based Learning Model to Enhance Educational Media Business Ability.

METHODOLOGY

This research is a Research & Development with objective to develop the Project-Based Learning model to enhance Educational Media Business ability for undergraduate students in Educational Technology and Communications Program and to test the project-based learning model with one group pretest-posttest design.

Population and Sample

Population

Population for this research are undergraduate students in Educational Technology and Communications program in Faculty of Education from a university in Thailand.

Sample

Sample group in this research includes 37 forth-year undergraduate students in the year 2015 in Educational Technology and Communications program, Faculty of Education, Naresuan University and these students are selected by purposive sampling methodology.

Research Instruments and Quality of Research Instruments:

1. Lesson plan by project-based learning to enhance educational media business ability is used that covers knowledge on educational media business and project-based learning activity and this plan has been verified by 5 experts prior to use.
2. Assessment for educational media business project is based on the result from project-based learning that reflects educational media business skills of the undergraduate stu-

dents on 2 pieces of project work, including educational media and business strategy. The evaluation form is a Rubric Score type.

3. Testing for knowledge on educational media business is in the form of multiple choices

that evaluate the educational media business knowledge before and after learning and this testing is divided into two parts, internal validity which is calculated from IOC (Index of Item – Objective Congruence) given by 3 experts and reliability which is calculated from KR-21 of Kuder-Richardson.

4. Questionnaires of opinion for the using of project-based learning model to enhance educational media business ability include 5 levels of rating scale and open-ended questions. The quality of the questionnaires is evaluated in 2 parts, internal validity which is calculated from IOC given by 3 experts and data analysis showing mean and standard deviation of results.

2. The assessment form for the educational media business project is based on the exhibition presenting educational media, educational media product and business strategy which is the last step of the Project-Based Learning in the 14th week of the project and the score for this assessment is analyzed and expressed as percentage and mean of the assessment results.

3. The testing to evaluate knowledge on educational media business skills of students before and after learning in the first week and the last week (15th week) and the testing data are analyzed with t-test dependent.

RESULTS

4. The data collected from questionnaires of opinion and satisfaction for the Project-Based Learning to enhance educational media business ability are expressed and analyzed with mean, standard deviation and content analysis.

Research Budget Learning process and 5) Evaluation project that is based on the result from project-based learning activity.

B. Objectives of the model: 1) Learners are able to enhance educational media business ability through using the Project-Based Learning. 2) Learners are able to get knowledge of educational media business through using the Project-Based Learning.

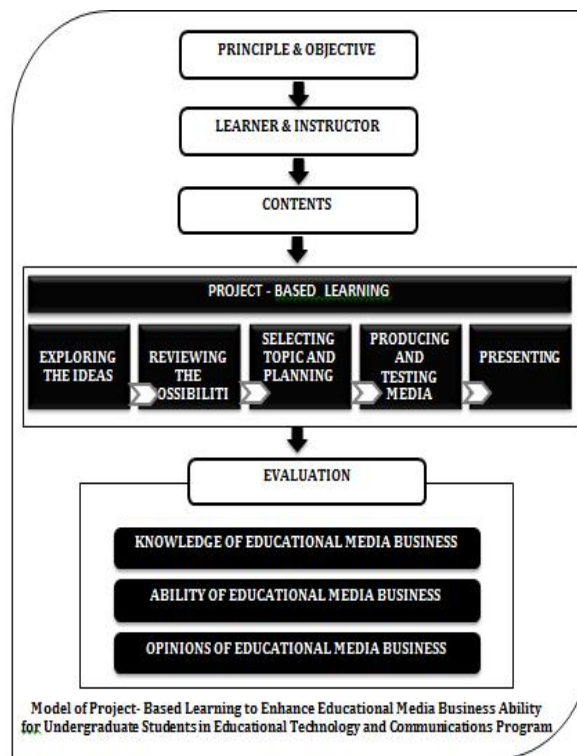


FIGURE 1. Model of project-based learning to enhance educational media business

Element II: Learner and Instructor

A. Learner: Qualified: 1) Learner is undergraduate student studied in educational technology and communications Program or similar program such as educational technology, educational innovation and technology, computer education, etc. 2) Learner enrolled in educational media business course.

B. Instructor: Qualified:

- 1) Instructor has knowledge and understanding of project-based learning process.
- 2) Instructor has knowledge and ability of teaching in educational media business.
- 3) Instructor has the responsibility of the educational media business course.

Element III: Contents

The content in this model consisted of:

- 1) Company settlement, business laws and other related-laws, business plan
- 2) Management of basic resources 4M: Man, Money, Materials, Management.

Man: Man is the important resource for business development. The sufficient man management for the company, the better is the matching for the right personnel for the right work and the human resource development.

Money: Money is the necessary resource for company settlement and company survival. The money has to be managed well so that the investing budget is the least but the benefit is the most.

Materials: Raw materials are needed for production, service and development of company. The materials have to be used carefully so that there will be the least wasted and used for the most benefits.

Management: Management is the business process that controls all the work to be the most effective and efficient.

- 3) Marketing principle 4Ps: Product, Price, Place, Promotion

Product: Product or Service is the manufactured substance that can make profit for the organization. The production must meet the following factors, e.g., demands from customers, quality of products, product design and service, etc.

Price: Setting the sale price is an important strategy for evaluating product price based on design, number, size, and quantity of different products. The set sale price must be attractive enough for customer interests and competitive enough to battle with other companies.

Place: the channel that brings the products from producers to customers. The good place is based on efficiency, accuracy, safety, speed, and sale strategy that makes the most benefits and distributes the products to the right targeted groups.

Promotion: Marketing promotion is the way to sale products or provide service at the highest level through all kinds of channels, such as advertisement, activities that promote sale, good service and direct sale.

- 4) Educational media, meaning, type, and process of educational media production, producers and service providers for educational media, business development for product sale or service for educational media.

Element IV: Project-Based Learning Process

The process of Project-Based learning to enhance educational media business ability involved 5 stages as follows: 1) exploring the ideas, 2) reviewing the possibilities, 3) selecting the topic and planning, 4) producing and testing media and 5) presenting.

Stage 1: Exploring the ideas: This first step is exploring the ideas. At this step, the students are allowed to form a group with any other students and work together to study recent educational media business from different sources. The information/knowledge about educational media business that students will gain from performing this step includes types of media, characteristics of products for educational media, product marketing or service for educational media in the present markets. Besides, the students will learn how to work as a team, how to adapt for different ideas, how to search for information and create new knowledge. The instructor will tell the objectives of the project, recommend the sources of media so that the students can prepare and search for the research information/knowledge by themselves.

Stage 2: Reviewing the possibilities: The second step is reviewing the possibilities. In this step, the students will learn from information/knowledge on business and educational media. Instructor will assign necessary content to student. The principals and theories for this step include:

- 1) Company settlement, business laws and other related-laws, business plan
- 2) Management of basic resources 4M: Man, Money, Materials, Management
- 3) Marketing 4P: Product, Price, Place, Promotion
- 4) Educational media, meaning, type, and process of educational media production, producers and service providers for educational media, business development for product sale or service for educational media.

Stage 3: Selected topic and planning The third step is selecting topic and planning stage. At this step, students in each group will choose the educational media production process and type of company, which are considered as the results from project-based learning that reflect the students' educational media ability. After that the students in each group will make a plan together to design educational media and business model for their company.

The instructor will inform the students about the evaluation standards and the production company for educational media as follows: 3.1) educational media 3.2) production company for educational media.

Stage 4: Producing and testing media: The fourth step is the producing and testing media stage when students from each group have made and tested their educational media. This step involves two parts: The first part is production of educational media based on the plan and testing the efficiency of the product prior to the actual application and the second part is settlement of educational media company and making the business model that includes the one-year results of the company management and benefits.

At this step, the instructor must continuously follow the progress in media production of students and give the students advice whenever they encounter any problems as well as recommend sources of information that students in each group can help each other search, decide and solve problems.

Stage 5: Presenting: The last step is presenting stage after the students in each group have produced the educational media and made the business model. Next the students have to present their products or services of educational media in form of exhibition and the presentation must be based on the marketing 4P. The exhibition is a business activity that allows the students to promote and advertise their products to the customers. The students can also choose their own strategies of presentation with the focus on the ability to communicate with and listen to others for the best understanding. The presentation ability/skill is important for students in their future work life because the presentation will help students increase their business marketing skills, create their critical thinking

systematically and confidently and learn how to give clear answers to questions from others.

Element V: Evaluation

The evaluation for Project-Based Learning model to enhance educational media business ability is the measurement of learning outcomes. The evaluation will be used as follows:

1) Assessment form of educational media business project is a Rubric Score type that evaluates the educational media business ability.

2) Testing for knowledge on educational media business is in the form of multiple choices that evaluates the educational media business knowledge before and after learning.

3) Questionnaires of opinion for the using of project-based learning model to enhance educational media business ability include 5 levels of rating scale and open-ended questions.

2. The results from this project-based learning project revealed that overall the students have educational media business skills at a very good level (\bar{x} = 4.56, S.D= 0.50).

3. The students' educational media business knowledge posttest scores are significantly higher than the pretest scores at a level of significance of .05.

4. The undergraduate students have the highest level (\bar{x} =4.61, S.D.=0.50) of satisfaction towards the Project-Based Learning model to enhance Educational Media Business ability for undergraduate students in Educational Technology and Communications Program.

In addition, the students present opinions on the advantages and disadvantages of a project-based learning to enhance the educational media business ability as follows:

Advantages:

- Support to work with team
- Make contact and coordinate with others
- Practice leadership and followership
- Share knowledge and help each other

TABLE 1. Level of overall students' educational media business ability

Topic	\bar{x}	S.D
Planning	4.43	0.49
Creative Thinking	4.57	0.51
Management Project	4.00	0.51
Product Design	4.40	0.49
Production	5.00	0.50
Presentation	4.52	0.56
Marketing	4.71	0.50
Communication	4.43	0.50
Team Work	4.86	0.49
Solving Problem and Decision Making	4.43	0.51
Using Technology	4.86	0.47
Total	4.56	0.50

TABLE 2. Comparison test of students' educational media business knowledge

Test	N	\bar{x}	S.D.	t-test	Sig
Pretest	37	21.70	5.33	18.35	.000*
Posttest	37	32.22	4.24		

TABLE 3 . Level of satisfaction towards the project-based Learning model

Topic	\bar{x}	S.D.
Get direct experience	4.63	0.49
Support Learning by doing	4.70	0.51
Support to practice business ability	4.53	0.51
Get to know content of educational media and business	4.63	0.49
Linking vast Knowledge	4.60	0.50
Develop Creative thinking skill	4.57	0.50
Enjoy to work with team	4.63	0.50
Challenge	4.63	0.49
Useful for profession	4.50	0.51
Overall PBL process satisfaction	4.70	0.47
Total	4.61	0.50

- Take action to develop educational media, doing business, showing exhibition and presenting the product
- Practice to use personal ability and integrate knowledge into project
- Get direct experience from doing project, practice of creating educational media business and get productivity goals
- Known management time, systematic working and have a good job planning
- Make responsibility for the team and self-responsibility
- Have a teacher as a coach and guide for reaching goals

Disadvantages:

- Spent time and resources too much for doing the project
- May not be inspired to complete their projects
- Need essential knowledge and various capabilities to do project. Sometimes students lack essential knowledge that makes them unsuccessful.

CONCLUSION AND RECOMMENDATIONS

The main purpose of this study is to develop the Project-Based Learning model to enhance educational media business ability for undergraduate students in Educational Technology and Communications program that included 5 elements as follows: 1) Principle and Objective 2) Learner and Instructor 3) Contents 4) Project-Based Learning Process and 5) Evaluation. All the components will contribute to use of this model to succeed. Students are able to develop their ability of educational media business. The instructor will manage environment that encourages students reach their aims. PBL is an approach of instruction that is a systematic teaching method that engages students in learning knowledge and ability through designed products and tasks. The result of the Project-Based Learning model is similar to the finding reported of (Surapong Federation Tan Sri Wong, 2015; Özer and Muhlis, 2012; Chua et al. 2014). PBL with appropriate innovative interventions leads to increased students' ability to achieve better learning and project outcomes.

According to the finding from the data of study of undergraduate students' ability, it was found that when the Project-Based Learning model was used, undergraduate students' achievement in educational media business has increased both the knowledge and ability. The result shows that the Project-Based Learning activities had positive effects on undergraduate students. The activities focus on action learning with the real world sit-

uation that encourages students to create educational media projects based on business world. Besides, the students learn how to work with team. In this research assessment of successful project and students' ability measured by educational media products, display exhibition and business plan were done. In addition, overall students' educational media business ability and educational media business skills were at a very good level as follows: production, using technology, team work, marketing, creative thinking, presentation, planning, communication, solving problem and decision making, product design and management project. This result is similar to the finding reported by (Antić and Dragana, 2012). Project-Based Learning created opportunities for groups of students to investigate meaningful questions that require them to gather information and think critically. To use project-based learning effectively, teachers must fully understand the concepts embedded in their projects and be able to use model and strategies effectively. Project-Based Learning is also an effective tool for imparting essential non-academic 21st century skills, including collaboration, critical thinking, and communication. Project-Based Learning has been demonstrated to improve students' ability to reason and argue clearly, to answer conceptual problems, and to hypothesize accurately (Stepien et al. 1993; Boaler, 1997; Schmidt et al. 1996). In conclusion, the way of enhancing ability of educational media business for undergraduate students in Educational Technology and Communications Program is using the Project- Based Learning Model. PBL leads to increased students' ability to achieve better learning and project outcomes.

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— This article does not have any appendix. —