

Impact of Learning and Teaching Management on Cooperative Education for Undergraduate Student at Rajamangala University of Technology Lanna, ChiangRai campus, Thailand

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Abstract

The purpose of this research was to study the effect of teaching cooperative education for students in Rajamangala University of Technology Lanna Chiang Rai (RMUTL). The research population was 62 students from Division of Electrical Engineering and Division of Tourism and Hotel who enrolled for the cooperative educational course. Research tool was questionnaires. Statistics used for data analysis were frequency, percentage, mean, and standard deviation.

It was found that there were 4 aspects of effect for teaching cooperative education for the students in RMUTL which were the highest average in all aspects in terms of cooperative educational course management, teaching plan, management and strategy, staff, resources, and information system, relevant activities, cooperative educational employment and certification, selection to work in a workplace, counseling, problem solving, and supervising, the compensation and benefit, and the cooperative educational evaluation.

Keywords: Learning and Teaching Management, Cooperative Education

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Introduction

Global changing nowadays caused high competition in labor market. The characteristics of graduates that is required such as knowledge and skills, work planning system, acquire learning, making decision, problem solving, human relations, initiative, discipline, ethic, moral, communicative skills, presentation, and leadership, etc. The students are able to acquire and develop these skills when they work. To study in the classroom is not provide any working skills, they have to be trained how to work which is in charge of the relevant institution and higher education to prepare the graduates for labor market. Graduate supervisors and Office of the Higher Education Commission as the graduate supporter have to work together to produce qualified graduates.

Office of the Higher Education Commission realizes about how to develop higher education in Thailand especially to develop the qualified potential of graduates for both local and international labor market. Cooperative education is the approach which can develop the graduates' working skills. Office of the Higher Education Commission promotes and supports this approach continuity and sustainability to produce qualified graduates for labor market by cooperating institution of education, Thai cooperative education association, higher education development network, and graduate supervisor organization. This will help in developing higher education management as well as Thai economy and society. According to the approach mentioned, Office of the Higher Education Commission has specified objective, goal, strategy, core measure, project, and activities to support and promote cooperative education.

Cooperative education is the education that based on learning and working in a workplace or work-based learning or project. The course concerns improving or problem solving for working process which students are able to achieve within 4 months. This helps students to learn from their working experience as well as to gain qualified skills for the enterprise.

Rajamangala University of Technology Lanna Chiang Rai focuses on produces hands-on learners who specialize in both theoretical and practical that is required for industrial sector. In order to produce the potential skilled students, Rajamangala University of Technology Lanna Chiang Rai provides cooperative education for the Faculty of Engineering, Division of Electrical Engineering for two semesters. Students have to achieve cooperative education training according to the university timeline. Cooperative education was successful. The enterprise and students were impressed and students were accepted to work in many workplaces. Cooperative education was improved and developed continuity. All students were trained about working skills and experience as hands-on learners.

The quality of education depends on the benefits of cooperative education management.

The researcher as the Director of Academic Affairs who in charge of cooperative education management especially to develop the curriculum according to the demand of labor market and enterprise, and who realizes about the benefits of cooperative education, conducted research in order to figure out how to prevent, improve, and develop quality cooperative education system and to reach international standard for ASEAN labor market.

Methodology

Research methodology for the research entitled the effect of teaching cooperative education for students in Rajamangala University of Technology Lanna Chiang Rai were as followed:

Population is 62 students who enrolled for cooperative education as below:

- 1) 33 students of Division of Electrical Engineering (1/2013)
- 2) 16 students of Division of Electrical Engineering (2/2013)
- 3) 13 students of Division of Tourism and Hotel (1/2013)

Research tool

Research tool for this research was questionnaires

- (1). Studied relevant research and documents for cooperative education in higher education institution.
- (2). Created tool for data collecting by using the information from (1) which was questionnaires.

Questionnaire concerns teaching cooperative education in Rajamangala University of Technology Lanna Chiang Rai that figure out the answer for the research objective. Questionnaire is divided into four parts which are:

Part 1 General information of the students who enrolled for cooperative educational program. Form of questionnaire was checklist.

Part 2 the effect of teaching cooperative education in Rajamangala University of Technology Lanna Chiang Rai. Form of questionnaire was five rating scales which were the most, more, moderate, less, and the least.

The meaning for the rating scales were:

- 4.50 – 5.00 means the most applicable
- 3.50 – 4.49 means more applicable
- 2.50 – 3.49 means moderate applicable
- 1.50 – 2.49 means less applicable
- 1.00 – 1.49 means the least applicable

Tool quality examination

Steps for tool quality examination were:

1) Studied the relevant research and document concerning cooperative education in order to create the questionnaires that included the evaluation of the effect for cooperative education in Rajamangala University of Technology Lanna Chiang Rai in four aspects which were:

- (1) 7 items of cooperative educational course management
- (2) 27 items of cooperative educational unit management
- (3) 36 items of relevant activities for cooperative education
- (4) 6 items of other activities concerning cooperative education

2) Specified the main matter which was used for the questionnaires in order to evaluate teaching cooperative education management. Then presented them to veteran for improving and commenting.

3) Presented the questionnaires with 76 items to three veterans for examining precise and appropriate of the evaluation for the effect of cooperative education management. It was found that all 76 items were precise and appropriate between 0.60 – 1.00.

4) Tested the tool which was improved with 20 students in Rajamangala University of Technology Lanna, Tak campus who were not research population. Then figured out the reliability by using Cronbach's alpha-coefficient (1977). It was found that the reliability was 0.981

5) Used the tool with reliability for creating the questionnaires which evaluated the qualified characteristics of graduates for enterprise. After that used the questionnaires which evaluated the effect of teaching cooperative education management with the research population.

Data collecting

Data for the research concerning cooperative educational management in Rajamangala University of Technology Lanna was collected by using the questionnaires for research samples. The cooperative educational students' adviser arranged the students in a main hall to do the questionnaires and all of the questionnaire were returned.

Data analysis

Research data which was from the questionnaires was analyzed by using research analysis program as follows:

Statistics used for figure out the answer for research objective items 1 and 2 which were frequency, percentage, and standard deviation, then described the result analysis.

Research results

1. Effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai

1) Cooperative educational course management

1.1 Cooperative educational course and credit

The effect of teaching cooperative educational management for students in Rajamangala University of Technology Lanna Chiang Rai for cooperative educational course and credit which the most effect was cooperative educational course contained core selective subject which has 6 credits ($\bar{x} = 4.41$). The least effect was the cooperative education subject ($\bar{x} = 2.58$)

1.2 Cooperative education teaching plan

The most effect of cooperative education management was Faculty or Division can provide cooperative educational course either for the third year or fourth year if applicable ($\bar{x} = 4.41$). The least effect was to study cooperative education preparation before cooperative education ($\bar{x} = 4.17$)

2) Cooperative educational unit management

(1) Cooperative educational structure

The effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai for cooperative educational structure which the most effect was as cooperative education as the central unit that regulates and supports the cooperative education of the Faculty ($\bar{x} = 4.40$). The least effect was cooperative education center which worked in the Academic affair sector and was regulated by the Vice-president of Academic affair ($\bar{x} = 4.12$)

(2) Cooperative educational management and strategy

The effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai for cooperative educational management and strategy which the most effect was the evaluation and report to Board of cooperative educational center for improvement. ($\bar{x} = 4.43$). The least effect was the cooperative educational staff contacted and collaborated with the enterprise ($\bar{x} = 4.17$).

(3) Staff, resources, and information system

The effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai for staff, resources, and information system which the most effect was staff such as 1. The cooperative educational officers, and 2. Board of cooperative educational center, Vice Dean of Academic, person who undertakes cooperative education in the faculty, cooperative educational advisers, personal resources, and enterprise counselors. ($\bar{x} = 4.45$). The least effect was contacted the relevant unit to arrange material or equipment that was used for cooperative education. ($\bar{x} = 4.12$)

3) Relevant activities for cooperative education

(1) Cooperative educational students' preparation

The effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai for cooperative educational students preparation which the most effect was the lecture concerning cooperative education for potential students ($\bar{x} = 4.48$). The least effect was the orientation for the cooperative educational students before they work in the workplace ($\bar{x} = 4.17$).

(2) Cooperative educational employment and certification

The effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai for cooperative educational employment and certification which the most effect was the collaboration of cooperative educational officers, faculty or division, and enterprise to provide the quality work that suffice for the cooperative educational students. ($\bar{x} = 4.51$). The least effect was the various ways to contact the enterprise such as invitation letter, telephone, fax, email, and walk in ($\bar{x} = 4.14$).

(3) A student selection to work in a workplace

The effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai for a student selection to work in a workplace which the most effect was the cooperative educational advisers who advise and approve for the students to work in a workplace ($\bar{x} = 4.51$). The least effect was student can choose a workplace where interested ($\bar{x} = 4.14$).

(4) Counseling, problem solving, and supervising cooperative education

The effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai for counseling, problem solving, and supervising cooperative education which the most effect was the cooperative education advisers supervised the students who work in the workplace one time as minimum. ($\bar{x} = 4.48$). The least effect was the cooperative educational adviser contacted students' advisory staff to inform a supervision plan. ($\bar{x} = 4.17$).

(5) Compensation and benefit for cooperative education students

The effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai for compensation and benefit for cooperative education students which the most effect was the cooperation of cooperative educational officers, person who undertakes cooperative education in the faculty, and enterprise to inform the students about compensation and benefits ($\bar{x} = 4.38$). The least effect was tax benefit provided to the enterprise where arranged cooperative education both in a form of document and electronic media that the enterprise can use for students' compensation and benefit ($\bar{x} = 4.16$).

(6) Cooperative educational evaluation

The effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai for compensation and benefit for cooperative educational evaluation which the most effect was the 8 scales of performance which are A B+ B C+ C D+ D F ($\bar{x} = 4.43$). The least effect was students' self-evaluation before and after worked in a workplace ($\bar{x} = 4.16$).

4) Other activities concerning cooperative education

The effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai for other activities concerning cooperative education which the most effect was the collaboration of academic activities between enterprise and university such as academic service, academic cooperative educational project, and veteran. ($\bar{x} = 4.45$). The least effect was the activities for alumni related to knowledge and skills ($\bar{x} = 4.14$).

Conclusion

1. Effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai

1.1 Cooperative educational course management

1) Cooperative educational course and credit

The effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai for cooperative educational course and credit which the most effect was cooperative educational course contained core selective subject which has 6 credits ($\bar{x} = 4.41$). The least effect was the cooperative education subject ($\bar{x} = 2.58$)

2) Cooperative education teaching plan

The most effect of cooperative education management was Faculty or Division can provide cooperative educational course either for the third year or fourth year if applicable ($\bar{x} = 4.41$). The least effect was to study cooperative education preparation before cooperative education ($\bar{x} = 4.17$).

Cooperative educational course contained core selective subject which has 6 credit is not effective according to the learning process. Students should choose the subject by themselves, not the advisers. This will help students to learn better according to their knowledge background and interest according to National Education Act 1999, Section 4 Education Management, and Clause 24(3) stated that "Learning by doing". Work Integrated Learning is successful in Thailand such as doctor, nurse, and teacher etc. Furthermore, Office of the Higher Education Commission specified a policy of work-based or community based education such as internship or apprenticeship for bachelor degree or Engineering Practice School. Work Integrated Learning makes curriculum development and a good relationship between higher education institute and enterprise.

1.2 Cooperative educational unit management

1) Cooperative educational structure

The effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai for cooperative educational structure which the most effect was as cooperative education as the central unit that regulates and supports the cooperative education of the Faculty ($\bar{x} = 4.40$). The least effect was cooperative education center which worked in the Academic affair sector and was regulated by the Vice-president of Academic affair ($\bar{x} = 4.12$)

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3) Staff, resources, and information system

The effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai for staff, resources, and information system which the most effect was staff such as (1). The cooperative educational officers (2). Board of cooperative educational center, Vice Dean of Academic, person who undertakes cooperative education in the faculty, cooperative educational advisers, personal resources, and enterprise counselors. ($\bar{x} = 4.45$). The least effect was contacted the relevant unit to arrange material or equipment that was used for cooperative education. ($\bar{x} = 4.12$)

The strategy of cooperative education management by contacting the relevant unit to arrange material or equipment that was used for cooperative education that students can have learning equipment and can learn effectively. The achievement evaluation for cooperative education which was done by the Office of the Higher Education Commission between 2002-2004 presented the mutual benefits of cooperative education as collaboration of students, higher education institution, and enterprises which higher education institution can produce qualified graduates according to the enterprises' demand. Cooperative education connects educational sector and industrial business sector. Students are trained how to work before graduation. Data obtained from students' working experience helps for curriculum or course development such as communicative skill and presentation skill. A meeting between students' adviser and enterprise's officer is also create academic collaboration.

1.3 Relevant activities for cooperative education

1) Cooperative educational student's preparation

The effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai for cooperative educational students preparation which the most effect was the lecture concerning cooperative education for potential students ($\bar{x} = 4.48$). The least effect was the orientation for the cooperative educational students before they work in the workplace ($\bar{x} = 4.17$).

Relevant activities for cooperative education such as lecture concerning cooperative education for potential student before working in a workplace. To learn from experience, will help student to learn effectively according to the research of cooperative education center, Suranaree Technology University (1993) stated the university has initiated and developed cooperative education system since 1993 by collaborating both industrial business sector and government sector and arranged three semesters for studying with two times for cooperative education. The process for cooperative education began with application for the course, contacted enterprise, recruit students, appointed adviser, and worked in a workplace. The adviser observed student while they were working. Student was evaluated by the enterprise and the adviser, then informed the student.

2) Cooperative educational employment and certification

The effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai for cooperative educational employment and certification which the most effect was the collaboration of cooperative educational officers, faculty or division, and enterprise to provide the quality work that suffice for the cooperative educational students. ($\bar{x} = 4.51$). The

least effect was the various ways to contact the enterprise such as invitation letter, telephone, fax, email, and walk in ($\bar{x} = 4.14$).

Student can trained how to work professionally according to the university's vision and mission that to produce the professional hands-on graduates. The research of Suranaree Technology University (1993) presented that the enterprise criticized about the disqualify students who lack of working and communicating skills. To develop graduates production, the Office of the Higher Education Commission have to support cooperative education in order to help students to learn by doing as well as can learn how to solve the problem and work effectively.

3) A student selection to work in a workplace

The effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai for a student selection to work in a workplace which the most effect was the cooperative educational advisers who advise and approve for the students to work in a workplace ($\bar{x} = 4.51$). The least effect was student can choose a workplace where interested ($\bar{x} = 4.14$).

A student selection to work in a workplace according to the enterprise's demand which the student's adviser will advise and approve for working in that workplace in order to encourage student to work as Herman Schneider (1906)'s cooperative education approach which was used for problem solving in the low skilled classroom that required practical to help the learner to understand. Schneider divided Engineering students into two groups. One group of student studied in the classroom and the other group practice working in a factory. It was found that to study in the classroom and to work in a factory created students' motivation. Student was also understand and can learn better which caused cooperative education to expand rapidly for Technology Science and Social Science. But there was also had problem for cooperative education such as suitable employment, labor union and teacher resistance, economy decreasing, appropriate structure, longer term for working from 2,4, 5,10,12 and 16 weeks or one semester has 6 months or 1 year. Learning through working experience in a form of cooperative education is still processing and expanding.

4) Counseling, problem solving, and supervising cooperative education

The effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai for counseling, problem solving, and supervising cooperative education which the most effect was the cooperative education advisers supervised the students who work in the workplace one time as minimum. ($\bar{x} = 4.48$). The least effect was the cooperative educational adviser contacted students' advisory staff to inform a supervision plan ($\bar{x} = 4.17$).

Cooperative education student' adviser should advise and solve the problem for the students one time as minimum so student will learn how to work and work regulatory which according to Herman Schneider (1903) stated the sandwich course which was the work experience learning in England at Sunderland College for Engineering and Architecture Marine on 1903. This course contained one year practical and study for three years. Time period for working was various from two to five with different time and was regulated by college, university, and industry. Adviser will advise and evaluate working performance which different from America and Canada. There was

some problem when initiated the course because of the employer's attitude that a university provided knowledge and training center provided working skill. The university which arranged cooperative education was promoted in England especially the students who can solve the problem, present information technology, work in team, and responsible are employed after graduation.

5) Compensation and benefit for cooperative education students

The effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai for compensation and benefit for cooperative education students which the most effect was the cooperation of cooperative educational officers, person who undertakes cooperative education in the faculty, and enterprise to inform the students about compensation and benefits ($\bar{x} = 4.38$). The least effect was tax benefit provided to the enterprise where arranged cooperative education both in a form of document and electronic media that the enterprise can use for students' compensation and benefit ($\bar{x} = 4.16$).

Cooperative students are encouraged and motivated by providing compensation and benefit so the students can work effectively. According to Office of the Higher Education Commission (2004) presented that there was a problem for cooperative education in Thailand between 2002-2004 such as knowledge about cooperative education principles and cooperative education processing. But there were many reports stated about the advantage of cooperative education as academic collaboration and can use for staff recruitment. Cooperative education student is potential which government should support.

6) Cooperative educational evaluation

The effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai for compensation and benefit for cooperative educational evaluation which the most effect was the 8 scales of performance which are A B+ B C+ C D+ D F ($\bar{x} = 4.43$). The least effect was students' self-evaluation before and after worked in a workplace ($\bar{x} = 4.16$).

Cooperative education evaluation which contain 8 scales is used to inform students about their working performance in the workplaces that is useful for graduate production management. According to Office of the Higher Education Commission (2004)'s cooperative education report presented that cooperative education evaluation creates mutual benefits such as Higher Education Institution can produce potential graduates who are required for labor market. It also connects education and industrial sector as job training education. Students can work in the workplaces before graduation. This also provides Higher Education Institution publication and increases employment. The information from cooperative education evaluation can be used for improving or developing curriculum or courses such as communication or presentation skills. There is the academic collaboration between the enterprise and Higher Education Institution.

1.4) other activities concerning cooperative education

The effect of teaching cooperative educational management for the students in Rajamangala University of Technology Lanna Chiang Rai for other activities concerning cooperative education which the most effect was the collaboration of

academic activities between enterprise and university such as academic service, academic cooperative educational project, and veteran. ($\bar{x} = 4.45$). The least effect was the activities for alumni related to knowledge and skills ($\bar{x} = 4.14$)

Other activities concerning cooperative education is arranged for further work experience. The process of cooperative education are apply for cooperative education and contacts the workplace, recruit students, appoints cooperative education advisors to supervise students, student works in the workplaces, cooperative education advisor supervises a student in a workplace, a workplace evaluates the cooperative education student, and informs student about their evaluation. Herman Schneider (1903) stated the sandwich course which was the work experience learning in England at Sunderland College for Engineering and Architecture Marine on 1903. This course contained one year practical and study for three years. Time period for working was various from two to five with different time and was regulated by college, university, and industry. Adviser will advise and evaluate working performance which different from America and Canada. There was some problem when initiated the course because of the employer's attitude that a university provided knowledge and training center provided working skill. The university which arranged cooperative education was promoted in England especially the students who can solve the problem, present information technology, work in team, and responsible are employed after graduation.

Suggestion for further research

1. Should study about international cooperative education for ASEAN
2. Should study about cooperative education management in the workplace
3. Should evaluate the project of cooperative education for both vocational and higher education institution
4. Should conduct research of comparative achievement of student who participate cooperative education and project of student supervision
5. Should conduct comparative research of cooperative education management between educational institution and the enterprise

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