The Design of the Learning Activity Model Using the Flipped Classroom Concept

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Abstract - **The purposes of the study were to design a learning activity model using the flipped classroom concept and to evaluate teacher's opinion toward the model. The research methodology have four steps: (1) Primary study and Design the model, (2) Construct the questionnaire, (3) Data correction, and (4) Data Analysis. The sample consisted of 30 teachers who have taught at Thepsatri Rajabhat University. Data were analyzed using the IOC evaluation form, Mean ($\bar{x}$) and standard deviation (SD). The results of the research study were as follows: the learning activity model using the flipped classroom concept consisted four parts: (1) Preparing, (2) Learning, (3) Extend learning, and (4) Evaluate. This model is appropriate for using in higher education. The overall of the teacher's opinion on the model was also at high level.**

Keywords - **Design of Learning Model, Learning Activity, Learning Activity Model, Flipped Classroom**

I. INTRODUCTION

The Learning Activity Model Using the Flipped Classroom Concept is a model which is used in higher education. Nowadays Thai Education Act aims to develop Thai students to be good and smart. Thai students must be promoted their ethics, knowledge, learning process, and integrated skills [7].

Furthermore, higher education aims to promote child center learning. Moreover, Thai Qualification Framework (TQF) in higher education focuses on five domains:

1) ethical and moral development
2) knowledge
3) cognitive skills
4) interpersonal skills and responsibility
5) analytical and communication skills [8].

However, the traditional classroom transforms the knowledge from teacher to student that causes some learning problems; for example, students do not have critical thinking due to learning environment and learning activity.

From the problems and the importance mentioned above, the researcher had an interest to design the learning activity model by using the flipped classroom concept.

Learning activity and Flipped classroom concept have been extensively applied to the study of the learning activity model, in particular with regard to the higher education. However, to date, few studies have focused on Thai Qualification Framework (TQF).

More recent research has occurred in the field of the flipped classroom concept in higher education. The reports of the flipped classroom are positive overall [4, 9].

However, their studies did not use Thai Qualification Framework. To the best of my knowledge, there are no results in the literature regarding whether the model is suitable for Thai higher education. The aim of the present work is to design a model to perform a learning activity to give the teachers enough time for the learning activities in classroom, and to evaluate the teacher's opinion of the learning activity model by using the flipped classroom concept.

The results of the proposed model are encouraging and show that an efficient model is suitable for Thai higher education. This new model can increase efficacy of the learning activity in higher education.

II. PURPOSE OF THE STUDY

1. To design the learning activity model by using the flipped classroom concept.

2. To evaluate teacher's opinion on the learning activity model by using the flipped classroom concept.

III. SCOPES OF THE STUDY

The study on the learning activity model by using the flipped classroom concept can be scoped according to the following research procedure.

A. Population and Sample
1. The population was the teachers who have taught at Thepsatri Rajabhat University.

2. The samples of this research study were 30 teachers who have taught at Thepsatri Rajabhat University which used the purposive sampling technique.

IV. REVIEW OF LITERATURE

In this research, the researcher studied the document and related research as follows.

A. Learning Activity
The learning activity is activity designed or deployed by the teacher to bring about, or create the conditions for learning [3]. The learning activity is related to the pedagogical character or focal intent of the activities selected. The questions that should be asked are, for example, what do I want to achieve with this activity? how will I achieve my aims? or which knowledge process is best suited to achieving my aim?

Some learning activities stimulate experiential learning, others mobilizes conceptual thinking, while still others prompt students to engage in analytical discussion. The pedagogical effectiveness of a learning element and a teacher's overall design can be traced to: 1) the mindful selection of learning activities based on the knowledge processes which those activities set in motion; 2) the establishment of direct links between those activities and the intended knowledge objectives; and 3) the careful sequencing of those activities such that they build on, or contribute to, the learning of earlier or later activities [3].

These different ways of using activities serve different purposes. This means the teacher can choose learning activity on pedagogical intent which is deliberately purposeful in designing. The learning activity is intended to present a broad range of activities and present a variety of ways of engaging your students in learning activities inside and outside class.

B. Flipped Classroom
First, perhaps the simplest definition of the flipped (or inverted) classroom is given by Lage [4, 9].

The flipped classroom means events that have traditionally taken place inside the classroom now take place outside the classroom. This definition would imply that the flipped classroom merely represents a re-ordering of classroom and at-home activities [9].

The flipped classroom employs group-based interactive learning activities inside the classroom, citing student-centered learning theories based on the works. The exact nature

of these activities varies widely between studies. Similarly, there is wide variation in what is being assigned as "homework". The flipped classroom label is most often assigned to courses that use activities made up of asynchronous web-based video lectures and closed-ended problems or quizzes. In many traditional courses, this represents all the instruction students ever get. Thus, the flipped classroom actually represents an expansion of the course, rather than a mere re-arrangement of activities. Despite the arguments concerning the flipped classroom using as a new topic in educational research, there is a lack of consensus on what exactly the flipped classroom is, and there is also a limited amount of scholarly research on its effectiveness [4].

The flipped classroom as an educational technique consists of two parts: interactive group learning activities inside the classroom, and direct computer-based individual instruction outside the classroom.

C. Thai Qualification Framework (TQF)

The Qualifications Framework for Thailand's higher education system is designed to support implementation of the educational guidelines set out in the National Education Act, to ensure consistency in both standards and award titles for higher education qualifications, and to make clear the equivalence of academic awards with those granted by higher education institutions in other parts of the world. The Framework will help to provide appropriate points of comparison in academic standards for institutions in their planning and internal quality assurance processes, for evaluators involved in external reviews, and for employers, in understanding the skills and capabilities of graduates they may employ [8].

The learning outcomes are grouped into the five domains, and in each domain there is an increase in the scale or complexity of the learning that is expected. In each case the knowledge and skills are intended to be cumulative, so that the learning at any level includes that of the same domain at earlier levels even if the particular knowledge or skill is not restated [8].

V. RESEARCH METHODOLOGY

In this study, the concept of the Learning Activity Model Using the Flipped Classroom Concept is based on the following steps:
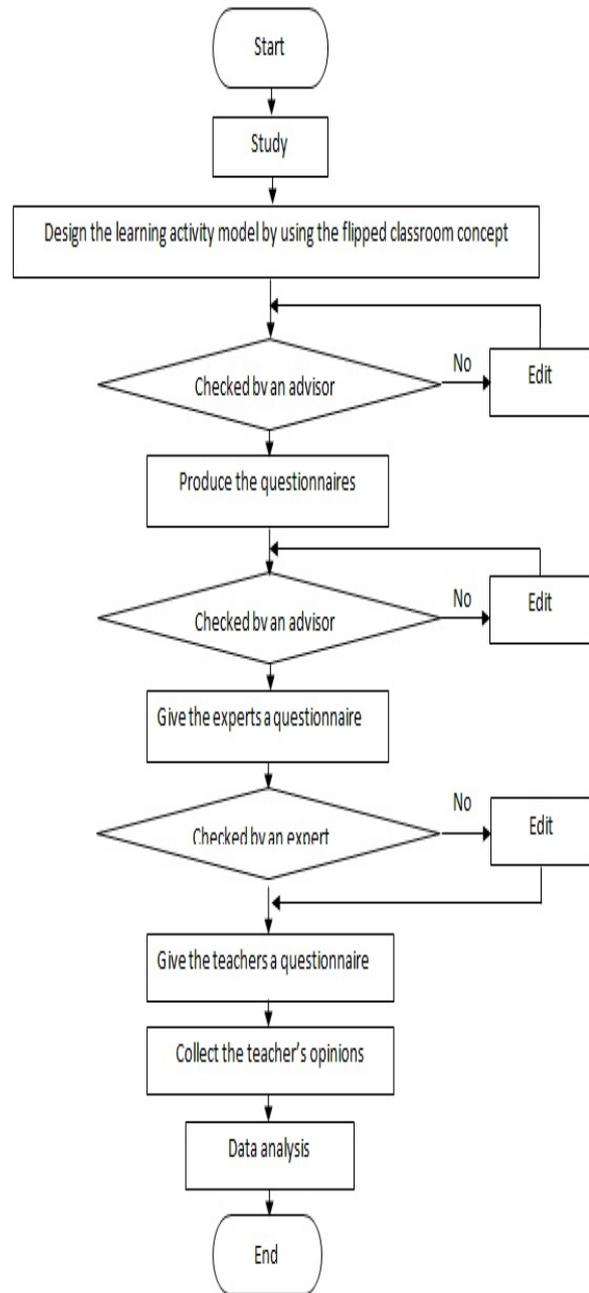

Fig 1. The Research Processes

A. Primary Study

First, the learning activity and the flipped classroom concept and Thai Qualification Framework were studied [1, 3, 4, 6, 8, 9, 10].

In this study, the conceptual framework of the Learning Activity Model Using the Flipped Classroom Concept shows in fig. 2.
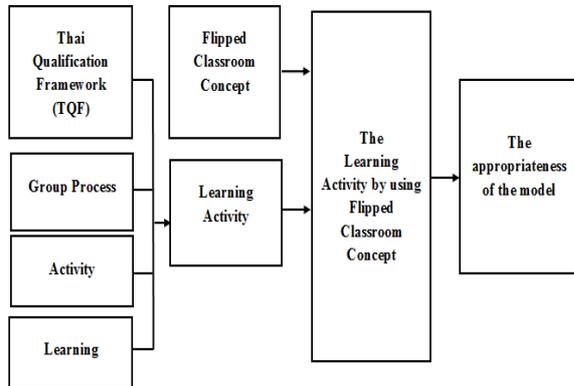

Fig 2. The Conceptual Framework of the Learning Activity Model Using the Flipped Classroom Concept

From the conceptual framework, that can be make relationship of the learning activity, Flipped classroom concept, and TQF. Table I shows the relationship between the learning activity and the flipped classroom concept.

TABLE I
THE LEARNING ACTIVITY AND THE FLIPPED CLASSROOM CONCEPT RELATIONSHIP

Learning activity	Flipped Classroom	
	Outside Classroom	Inside Classroom
1) Intro		✓
2) Learning	✓	✓
3) Evaluate	✓	✓

The relationship between the flipped classroom concept and TQF was showed in Table II.

TABLE II
THE FLIPPED CLASSROOM CONCEPT AND TQF RELATIONSHIP

TQF	Flipped Classroom	
	Outside Classroom	Inside Classroom
1) Ethical and Moral Development	✓	✓
2) Knowledge	✓	
3) Cognitive Skills		✓
4) Interpersonal Skills and Responsibility	✓	✓
5) Analytical and Communication Skills	✓	✓

Table III shows the relationship between the learning activity and TQF.

TABLE III
THE LEARNING ACTIVITY AND TQF RELATIONSHIP

TQF	Learning Activity		
	Intro	Learn	Evaluate
1) Ethical and Moral Development	✓	✓	✓
2) Knowledge		✓	✓
3) Cognitive Skills		✓	✓
4) Interpersonal Skills and Responsibility	✓	✓	✓
5) Analytical and Communication Skills	✓	✓	✓

From all relationship, the model of the learning activity by using the flipped classroom concept was designed which consist four parts: 1) Preparing, 2) Learning, 3) Extend learning, and 4) Evaluate. Table IV shows the detail of the learning activity of the model.

TABLE IV
THE LEARNING ACTIVITY MODEL BY USING THE FLIPPED CLASSROOM CONCEPT

Activity	Description
Preparing	1) The teacher prepares learning materials in a relevant subject for educating learners in advance. It can be a short video or animation-based teaching. It can be downloaded. Or to leave it on Youtube or from other sources. Related content. 2) The teacher identifies the students who know the behavioral objectives. 3) Understanding and an agreement on mutual learning between the teacher and the students. 4) The students quiz before learning (Pre-test). 5) The teacher creates a question or makes a point to the idea of different aspects. The questions about the meaning, the importance and function or type of application.

Learning	1) The students will study by themself from the learning materials which the teacher created or gave it. The students can study and get more from various other learning sources. 2) The students conducted their own study from other sources. 3) Before the class, the students will discuss issues together with online community such as Line, Facebook, according to demand. 4) The students record the knowledge gained from the study and then divided into four parts: Part 1 keyword, Part 2 detail or content, Part 3 summary and Part 4 questions, concerns, problem, issues.
Extend learning	1) The students will learn together by the group process. They will be divided into small groups of 3-5 students to share what they have learned from the learning materials. They will work together to analyze and find the answers from the media study at home. The teacher will provide advice to the students. 2) The teacher gives the problems or situation to the group to resolve. 3) The teacher gives the problems or situation to individually resolve. 4) The students demonstrate solutions based on the questions that have been assigned. 5) The teacher makes sure how the students learn and practice. Tests are used to determine the correct understanding of the students. 6) The teacher tests the students to determine the correct understanding of the students. 7) The students present their work in the classroom. They are going to share and exchange their ideas. 8) The students and teacher discuss, exchange experiences, and summarize their learning
Evaluate	1) The students evaluate other students. 2) The teacher evaluates the output, content and process.

B. Research Tools

Tools used in this study are as follows.
1) The learning activity model.
2) The questionnaires for the experts.
3) The questionnaires for the teachers.

C. Data Collection

The data were collected according to the procedure below:

1) Produce the questionnaires for the expert.
2) Give the experts a questionnaire and a model to ask about their comment.
3) Produce the questionnaires for the teachers.
4) Give the teachers a questionnaire to ask about their opinion.
5) Collect the teacher's opinion.

D. Data Analysis

The questionnaires were analyzed to find out the teacher's opinion by using descriptive statistics such as mean and standard deviation.

VI. RESULTS OF THE STUDY

The research results are shown as follows.

1. The appropriate model of the learning activity by using the flipped classroom concept consist four parts: 1) Preparing, 2) Learning, 3) Extend learning, and 4) Evaluate.

2. The teacher's opinion of the model of the learning activity by using the flipped classroom concept. Table V shows the teacher's opinion of the model.

TABLE V
THE TEACHER'S OPINION OF THE APPROPRIATENESS OF THE LEARNING ACTIVITY MODEL BY USING THE FLIPPED CLASSROOM CONCEPT

The appropriateness of the model	Mean	S.D.
1) This model has factor appropriate for learning.	4.23	0.50
2) This model has step appropriate for learning.	4.47	0.57
3) This model has appropriate brainstorm.	4.53	0.73
4) This model is appropriate for working individually.	3.97	0.99
5) This model is appropriate for work group.	4.27	0.86
6) This model is appropriate for discussing.	4.50	0.63
7) This model is appropriate for self-study.	4.53	0.57
8) This model has appropriate	4.00	0.37

	Mean	S.D.
assessment.		
9) This model is appropriate for using in teaching and learning.	4.27	0.52
Total (Average)	**4.31**	**0.64**
The learning according to the TQF.	**Mean**	**S.D.**
1. Ethical and Moral Development		
1.1) This model is appropriate for discipline and responsibility.	4.40	0.56
1.2) This model is appropriate for honesty.	4.07	0.52
1.3) This model is appropriate for leadership.	4.13	0.81
1.4) This model is appropriate for hearing.	4.30	0.70
1.5) This model is appropriate for academic ethics.	3.97	0.49
Total (Average)	**4.17**	**0.61**
2. Knowledge	**Mean**	**S.D.**
2.1) This model is appropriate for knowledge creation.	4.37	0.71
2.2) This model is appropriate for knowledge integration.	4.37	076
2.3) This model is appropriate for application of knowledge.	4.27	0.74
2.4) This model is appropriate for academic changes.	4.23	0.81
Total (Average)	**4.31**	**0.76**
3. Cognitive Skills	**Mean**	**S.D.**
3.1) This model is appropriate for systems thinking.	4.20	0.71
3.2) This model is appropriate for solving problems.	4.13	0.77
3.3) This model is appropriate for using scientific processes.	3.17	0.64
Total (Average)	**4.21**	**0.53**
4. Interpersonal Skills and Responsibility	**Mean**	**S.D.**
4.1) This model is appropriate for team working.	4.20	0.80
4.2) This model is appropriate for self-development.	4.57	0.62
4.3) This model is appropriate for interaction.	4.20	0.61
4.4) This model is appropriate for collaboration.	4.30	0.65
Total (Average)	**4.32**	**0.67**
5. Analytical and Communication Skills	**Mean**	**S.D.**
5.1) This model is appropriate for communication, summary and presentation.	4.37	0.66
5.2) This model is appropriate for presentation with ICT.	4.27	0.69
5.3) This model is appropriate for application of statistics or mathematic in solving problems.	4.20	0.61
Total (Average)	**4.28**	**0.65**

3. The summaries of the teacher's opinion of the model of the learning activity by using the flipped classroom concept. Table III shows the summaries of the teacher's opinion of the model.

TABLE VI
THE SUMMARIES OF THE TEACHER'S OPINION OF THE APPROPRIATENESS OF THE MODEL

Item	Mean	S.D.
1) Learning Model	4.31	0.64
2) Ethical and Moral Development	4.17	0.61
3) Knowledge	4.31	0.76
4) Cognitive Skills	4.21	0.53
5) Interpersonal Skills and Responsibility	4.32	0.67
6) Analytical and Communication Skills	4.28	0.65
Total (Average)	**4.27**	**0.64**

Table VI reveals that the summaries of the teacher's opinion of the learning activity model by using the flipped classroom concept. The average maximum teacher's opinion was the interpersonal skills and responsibility ($\bar{x}$ = 4.32, SD = 0.67), followed by the learning model ($\bar{x}$ = 4.31, SD = 0.64). The third rank was the knowledge ($\bar{x}$ = 4.31, SD = 0.76). The fourth rank was the analytical and communication skills ($\bar{x}$ = 4.28, SD = 0.65). The fifth was the cognitive skills ($\bar{x}$ = 4.21, SD = 0.53). And the last was the ethical and moral development ($\bar{x}$ = 4.17, SD = 0.61). The total average was 4.27 ($\bar{x}$ = 4.27) and the total standard deviation was 0.64 (SD = 0.64).

From Table IV, the results show the summaries of the opinion level teacher's opinion level of the model.

The design of rating scales. The rating scales were based on the optimal number of scale points [10].

The opinion scales were classified into five levels, which applied into the interval form and calculated the average of the score and compute the significant level of teacher

opinion. Basis measurement of the average score was defined as follows:

Range	Opinion Level
4.21 - 5.00	Highest
3.41 - 4.20	High
2.61 - 3.40	Middle
1.81 - 2.60	Low
1.00 - 1.80	Lowest

Table VII shows the summaries of the teacher's opinion level of the model.

TABLE VII
THE TEACHER'S OPINION LEVEL
OF THE MODEL

Item	Mean	S.D.	Level
1) Learning Model	4.31	0.64	High
2) Ethical and Moral Development	4.17	0.61	High
3) Knowledge	4.31	0.76	High
4) Cognitive Skills	4.21	0.53	High
5) Interpersonal Skills and Responsibility	4.32	0.67	High
6) Analytical and Communication Skills	4.28	0.65	High
Total (Average)	**4.27**	**0.64**	**High**

Table VII revealed the summaries of the teacher's opinion level of the model. The results show that all the items and overall the teacher's opinion were at high level.

VII. CONCLUSION

Based on the findings of the study, it was found that the learning activity model by using the flipped classroom concept consisted four parts: 1) Preparing, 2) Learning, 3) Extend learning, and 4) Evaluate which is appropriate for using in higher education and the teacher's opinion of the learning model, the ethical and moral development, the knowledge, the cognitive skills, the interpersonal skills and responsibility, and the analytical and communication skills were at high level. The overall of the teacher's opinion was also at high level. Similar to Qiang [4].

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(Arranged in the order of citation in the same fashion as the case of Footnotes.)

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