

**Research and Development of a Research Base Learning Model (RBL)  
In Teaching Students of the Faculty of Education St. Theresa International  
College**

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**Abstract**

Research objectives to develop a Research-Based Learning model, to develop teaching skills by Research-Based Learning model, and to compare student achievement between general teaching and Research-Based Learning teaching. The target group is students in the graduate diploma teacher program, in the subjects Curriculum and Teaching. The research findings are as follows: 1) Summary of the learning management model by using Active Learning concepts in research teaching (RBL) of students Diploma

Teaching Profession In the Curriculum and Teaching subject. There are 16 distinctive works in E-Portfolio. Individual work files are sent via E-mail to the instructor, stored as a portfolio in each student's identification folder provided. 2) Assessment of teacher teaching skills In each aspect and overall, students found their opinions Overall is at a high level. 3) Achievement score of teaching by Active Learning concept with using Research-Based Learning(RBL) found that the achievement scores at a very good level. The highest number is 36.21 percent, followed by a good level of 34.48 percent and a fair level. 18.97 percent, with a low level of achievement (passed the minimum criteria) 8.62 percent and a person who has a very low assessment (lower than the threshold) amount of 1 person, representing 1.72 percent. 4) Research results and research quality level of 58 students from 2 study groups. A total of 33 research studies found that the research work of the students has been completed. And passed the criteria for consideration of 26 cases, representing 78.79%, There were 47 researchers, accounting for 81.34 percent, while 7 disqualified works were 21.21 percent, with 11 researchers accounting for 18.96 percent. Of these, there were 6 very good works for development. Submitted for publication in CTI base journals, amount 3 subjects.

**Keywords:** research & development; teaching model; research based learning (RBL)

## **1. Background and importance of the Problem**

Research Based Learning is the teaching that a learning management process that is an active teaching. Learning is a teaching in the 21st century that focuses on higher education. That allows the student to play a primary role in the pursuit of knowledge Is a research study / research methodology Learning from research / research reports Learning from research / joint research project Learning from research / small research And learning from research The learning management plan focuses on student activities.

Currently, Research-based Learning is there are different processes and procedures according to each theory. Each theory emphasizes teaching that allows students to gain life experiences while studying. Research-based Learning therefore can be considered as another form of teaching that is student-centered. Since the learner has taken action to practice various skills Manually every step With an instructor providing the learning experience Therefore, teachers need to be alert and prepared to teach in order for students to have the skills to live in the 21<sup>st</sup> century.

Education is an important process for the development of quality people with the ability to be aware of various changes. Research-based teaching behavior of teachers is

one of the important factors affecting the promotion of students' skills in practice and cognitive skills in various fields. For the development of student preparation In which research-based Learning helps promote thinking processes Both systematic thinking Problem solving Analytical thinking Synthetic thinking And creative thinking In addition, students can apply in the future that is needed by today's society.

For the reasons mentioned above The researcher has the idea to use research-based learning in teaching and learning for the year 2019 by developing the teaching model, to enable the learners to learn through the research process. And experience Systematically Can be applied in the future.

### **2. Research objectives**

1. To develop a research-based teaching model. (Research Base Learning)
2. To develop teaching skills by using the Research Based Learning model
3. To compare the student achievement between General teaching and Research

Based

Learning

### **3. Research questions**

1. What is the research base learning model?
2. What is the teaching skills using the Research Base Learning model?
3. Are there any differences in achievement between conventional teaching and Research Based Learning teaching?

### **4. Research hypothesis**

Student achievement between The general teaching and Research Base Learning teaching are different.

### **5. Expected Benefits**

1. The research base learning model is used as a guideline for teaching and learning in other subjects in the future.

2. Teachers have Research Base Learning skills and use it as a guideline for teaching and learning in other subjects in the future.

3. Know the difference between conventional teaching and Research Base Learning teaching. It is information in the development of teaching and learning to be more effective.

## **6. Research scope**

### **1. Population scope**

Population are undergraduate students and graduate certificate students. Of the Faculty of Education 132 students from St. Teresa International College

### **2. Scope of content**

#### **Variables**

- 1) Teaching style consisting of Research Base Learning and general teaching
- 2) Teaching skills by using the Research Base Learning (RBL) model.
- 3) Student achievement

### **3. Duration of study for Semester 2, academic year 2019**

## **7. Practical definition**

In order to understand the specific meaning of the words used in this research Therefore has the following definition defined.

**Teaching by Research Base Learning** means Active Teaching, Learning that allows students to play a key role In the pursuit of knowledge It is learning research / research methods, learning from research / research reports, learning from research. / Participate in research projects, Research Based Learning / small research, and Research Based Learning, lesson plans focusing on student activities.

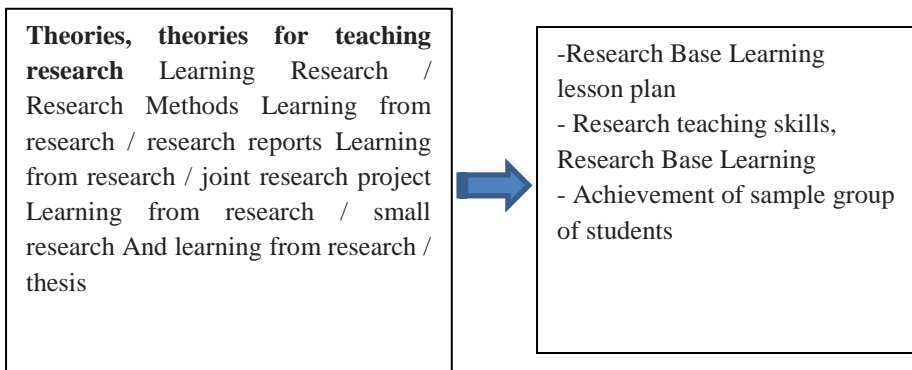
**General teaching style** Means teaching according to the normal teaching plan Which consists of the introduction, the teaching step, and the summary, with the teacher having the main role.

**Teaching skills using the teaching model Research Base Learning** means the ability to teach as a research base. Students seek knowledge from research learning / research methods. Learning from research / research reports Learning from research / joint research project Learning from research / small research And learning from research, measured by the teaching evaluation form

**Student achievement** refers to the student's academic performance, curriculum and teaching. Measured by the knowledge test as a question for the exam after teaching, using the research teaching model as a base (Research Base Learning).

### **8. Research conceptual framework**

In this study, based on the conceptual framework of teaching and research theory by Prof. Emeritus Dr. Somwang Phithianuwat (Phithianuwat & Boonterm, 1994), consisting of Learning Research / Research Methods Learning from research / research reports Learning from research / joint research project Learning from research / small research And learning from research / thesis



### **9. Research Methodology**

Research & development teaching styles, Research Based Learning, Have a purpose To develop teaching styles, Research Based Learning model, to develop

teaching skills by using the Research Base Learning model and to compare student achievement between General teaching and Research Base Learning teaching.

## 1. Population and samples

1.1 Population consisting of undergraduate students and graduate students of the faculty Education, St. Teresa International College, 132 persons

1.2 Sample Acquired by the Cluster Random Sampling method using subjects registered for courses and instruction. In which there are 4 groups enrolled in the said course

## 2. Variables

2.1 The primary variable was the teaching methodology consisting of general teaching and Research Base Learning teaching.

2.2 Follow variables consist of

- Achievement of learners It consists of test scores and student research results.
- Teaching satisfaction Obtained from the satisfaction assessment form
- Teaching skills of teachers From the teaching evaluation form

## 3. Research instruments

The instruments used in this research consisted of

- 1) RBL lesson plan and general lesson plan.
- 2) The achievement test is a multiple-choice multiple choice exam with 110 questions.
- 3) Student satisfaction assessment form
- 4) RBL Teaching Skills Assessment Form.

Each assessment is a 5 level estimation scale question, Likert's five rating scale.

## 4. Finding quality tools

### 4.1 Validity

Content Validity is a study of IOC values (index of Item Objective Congruence) of knowledge testing. Teaching skills assessment Research capability evaluation form And the teaching satisfaction assessment form.

The examination of 5 experts, set the criteria that pass the  $IOC \geq 0.50$ , found that the IOC is between .60 - 1.00, every item in every form.

#### 4.2 Reliability

The study of Reliability is an internal consistency knowledge test with the formula KR-20 with Reliability  $\infty = .855$  for the teaching skills assessment, research capability assessment, and teaching satisfaction assessment by the formula: Cronbach's Alpha Coefficient found that: Teaching Skills Assessment  $\infty = .805$ , Research Ability Assessment  $\infty = .967$ , Satisfaction Assessment  $\infty = .849$

**4.3 Finding the effectiveness of the RBL lesson plan** by evaluating the E1 / E2 efficiency by determining the criteria  $E1/E2 = 70/75$ , in this study found that  $E1/E2 = 73.87/75.73$

### 10. Data analysis

In this research, the statistics used for data analysis consisted of

1. Descriptive on knowledge scores of samples Use frequency and percentage values (%)
2. Descriptive evaluation for teaching skills use the mean and standard deviation
3. Comparison of research abilities of students before study and after learning by using RBL method by Dependent t-test
4. Comparison of teaching satisfaction scores between 3 section by One-way ANOVA
5. Qualitative data analysis of research-based teaching Use content analysis in Groups Discriminant for Qualitative data

#### 10.1 Data analysis results

**Table 1** Results of instructor skill evaluation by using Active Learning concepts in teaching RBL as according to student assessment St. Teresa International College, in each dimension and overall.

Item	Dimension of evaluation	Mean	S.D.	skill level
1	In the teaching and learning process	4.17	0.56	High
2	In the Place of audiovisual equipment	4.23	0.64	High

Item	Dimension of evaluation	Mean	S.D.	skill level
3	The efficiency of the instructor	4.46	0.47	High
4	Measurement and Evaluation of Teaching and Learning	4.35	0.54	High
5	Benefits	4.40	0.54	High
	Overall	4.32	0.45	High

From the table of teacher teaching evaluation by using Active Learning concepts in teaching RBL, according to the student evaluation, found that all aspects and overall assessment results are at a high level (Mean = 4.32, SD = 0.45. ) Considering each aspect, it was found that there was a high level of skill in all dimension, By the efficiency of the instructor The highest mean (Mean = 4.46, S.D. = 0.47), followed by the benefit (Mean = 4.40, S.D. = 0.54). In the teaching process Have the lowest average value (Mean = 4.17, S.D. = 0.56)

**Table 2** Comparison of the average of self - efficacy in conducting research between before and after studying of Students taught by instructors using Active Learning concepts in RBL teaching by Dependent t-test analysis.

RBL teaching	n	Mean	S.D.	t	df	Sig
Pre-teaching	58	2.13	.52	-30.548***	57	.000
Post-teaching	58	4.56	.38			

\*\*\* P < .001

From the Dependent t-test table comparing self-efficacy Regarding the research between before study and after study of students taught by teachers using Active Learning concept in teaching RBL, found that post-study ability was higher than before learning at statistical significance of .001 level



**Table 3** Achievement Points of teaching by Active Learning concept by RBL teaching.

No.	score (%)	Level	Frequency	percent
1	< 50	The lowest	1.00	1.72
2	50-59	Low	5.00	8.62
3	60-69	moderate	11.00	18.97
4	70-79	good	20.00	34.48
5	80-100	Very good	21.00	36.21

From the table, found that the achievement score At a very good level The highest number was 36.21 percent, followed by good levels at 34.48 percent and moderate levels at 18.97 percent, with low achievement at 8.62 percent and with one of the lowest evaluations of 1.72 percent.

### **11. Research summary**

#### **1. Summarize the teaching model by using Active Learning concepts in teaching RBL. St. Theresa International College** has 16 tasks features in E-Portfolio.

Individual word files are sent via E-mail. Teachers are stored as folders in each student's identification folder that the teacher has prepared, Include as followed:

**Task 1** Search and submit jobs, principles, concepts, theory, curriculum development, curriculum development

**Task 2** Search and submit jobs. Three course types, core curriculum, local curriculum and institute curriculum.

**Task 3** Search and submit jobs. Course Analysis, define research problems, set objectives

**Task 4** Set research design, assess curriculum, write Evaluation framework, submit Jobs

**Task 5** Tool development for assess curriculum, search course and submit the questionnaire

**Task 6** Search and submit, research proposal , lesson 1, 2, 3 ,

**Task 7** Practice developing knowledge test, Search and submit knowledge test

**Task 8** Analyzing quality of tools, validity, reliability. Search and submit IOC results report.

**Task 9** Data Collecting, curriculum evaluate, submit Data file in Excel or SPSS

**Task 9.1** Data Analysis, submit output SPSS

**Task 10** Search and submit 3-4 teaching methods.

**Task 11** Power point presentation in search of teaching methods (in accordance with Task 10)

**Task 12** Make lesson plans, submit each group 3 plans, demonstrate teaching 1 plan/group

**Task 13** Submit paper(by e-mail), research report analysis and evaluation, chapter 1-4

**Task 14** Submit paper(by e-mail), research report analysis and evaluation, chapter 1-5

**Task 15** Submit complete research, abstract, research paper

**Task 16** Practice test development, submit test, Course summary,

## **2. Assessment of instructor's teaching skills by using Active Learning concepts in research-based learning(RBL)**

Evaluation of instructional skills of teachers by using Active Learning concepts in teaching RBL as assessed by students regarding the teaching process, it was found that the respondents had opinions in this field as a whole. High level (Mean = 4.17, S.D. = 0.56). When considering each item, it was found that every item of opinion was at a high level. The teaching activities focus on group activities with the highest mean (Mean = 4.45, SD = 0.64), followed by Active Learning in teaching RBL (Mean = 4.17, SD = 0.69). The organization of research activities more than other activities had the lowest mean (Mean = 3.89, SD = 0.77). The dimension of location and audio-visual equipment, it was found that the respondents had opinions in this field as a whole. High level (Mean 4.23, S.D. 0.64). When considering each item, it was found that there was a high level of opinions in every item. Small classroom Teachers will organize activities using

Active Learning concepts in teaching RBL with the highest Mean (Mean 4.33, S.D. 0.66). Next is the Active Learning Teaching Methodology by using Research Based Learning(RBL) of the instructor, suitable for the classroom and the technology is ready (Mean 4.29, SD 0.65). The teacher has enough outside learning resources to The teaching and learning activities had the lowest mean (Mean 4.08, SD 0.85). The dimension of the efficiency of the teachers, it was found that the respondents had opinions in this field as a whole. High level (Mean 4.46 S.D. 0.50). When considering each item, it was found that the highest level of opinions were 1 item, namely the instructors giving students the opportunity to ask questions. When in doubt or do not understand the research (Mean 4.70, S.D. 0.50) with The opinions were at the high level of 2 items which were the instructors to create an enjoyable learning atmosphere (Mean 4.47, S.D. 0.59) and the teachers reduced their roles. Is only a guide (Mean 4.23, S.D. 0.67). The dimension of measurement and evaluation found that student has an overall opinion on this dimension High level (Mean 4.35, S.D. 0.54). When considering each item, it was found that there was a high level of opinions in every item by an instructor for students. Have more roles in self-evaluation, have the highest mean (Mean 4.41, S.D. 0.61) Followed by a teacher providing feedback to students after conducting research activities every time (Mean 4.39, S.D. 0.63). Teachers emphasize measuring and evaluating learning results from conducting research activities. More than the minimum Mean Test (Mean 4.26, S.D. 0.71) The dimension of Benefits: The respondents have an overall opinion in this area. High level (Mean 4.40, SD 0.54). When considering each item, it was found that every level of opinion was at a high level, with students developing higher thinking skills, having the highest Mean (Mean 4.48, SD 0.59), next Becoming a student is easier and faster on understanding of content (Mean 4.36, SD 0.62), while students have an understanding of content on their own with the lowest Mean (Mean 4.35, SD 0.59). The final, opinions about teacher teaching skills by using Active Learning concepts in teaching RBL as assessed by students In each aspect, it was found that the respondents had a high level of overall opinions (Mean 4.32, S.D. 0.45) when considering the dimensions, found that it was at a high level in every dimension, with the efficiency of the instructors having the highest mean (Mean 4.46, SD 0.47), followed by the benefits (Mean 4.40, SD 0.54) while the teaching process had the lowest mean ( Mean 4.17, SD 0.56)

### **3. Assessing student's research ability Before and after learning by using Active Learning concepts in teaching RBL.**

Existing research ability before and after learning classified by item of research activities found that the ability to conduct research before studying was at a fair level in every item. With the research ability of the highest students, namely Ability to write a sample And when considering the condition of ability before studying, the lowest is to write suggestions And found that the research ability of students after studying is very good in every item The research ability of the students with the highest after study was Research question formulation As for the research ability of students after school, the lowest is the construction of research tools. The results of the comparison of the mean of self - efficacy in conducting research between before and after learning of students taught by instructors by using Active Learning concepts in research teaching (RBL) by the test of Dependent t. -test) found that post-study ability was higher than before at the statistical level of .001

### **4. Achievement and satisfaction of individual teaching by teaching using RBL in curriculum and instruction**

#### **4.1 Achievement evaluation summary E1, E2 lesson plan performance**

Achievement score And finding the efficiency of E1 / E2 of teaching by teaching based on Active Learning concept by teaching RBL. Found that the efficiency of teaching by Active Learning by teaching RBL in this lesson plan is effective E1 / E2 = 73.87 / 75.73. According to set criteria (E1 / E2 = 70/75). Achievement score Of teaching by teaching Active Learning by teaching RBL found to be very good The highest number was 36.21 percent, followed by a good level of 34.48 percent and a fair level of 18.97 percent, with a low level of achievement (passed the minimum criteria) 8.62 percent and a person with a low level of evaluation (lower than the criteria ) Amount 1 person 1.72 percent. Comparison of Mean grades Between samples Students taught by instructors using Active Learning concepts in teaching RBL and groups that are taught in general by Independent t-test found that the learning achievement was not statistically significant.

#### **4.2 Summary of the teacher satisfaction assessment**

Student satisfaction Regarding the teachings of teachers, it was found that Mean was at the highest level (Mean 4.6, S.D. 0.35). When considering each item, it was found that the satisfaction level was at the highest level in all items, with teachers

using polite words, Honor students with good behavior have the highest mean (Mean 4.81, S.D. 0.40). Followed by punctual teaching and termination (Mean 4.81 SD 0.44) and the 3<sup>th</sup> teachers gave students the opportunity to ask questions and express opinions, with Mean 4.76, SD 0.47. And consultations have the lowest mean (Mean 4.59, S.D. 0.56).

The comparison of mean satisfaction between the three sample groups consisted of students studying with Teaching by instructors using Active Learning concepts in teaching 2 groups of RBL and 1 group of general teaching. By analyzing One way ANOVA, the satisfaction was not statistically significant.

**Summary of qualitative opinions Satisfaction with RBL teaching:** There were 50 students, 80 opinions, summarized in 4 groups as follows: Group 1<sup>th</sup> about teachers Knowledgeable instructors, The instructors have good teaching techniques, able to explain the content clearly. Group 2<sup>nd</sup> about giving tasks students do more outside of the classroom with a lot of homework But learners have little time and less study time. Group 3: Students are able to apply knowledge, students can apply knowledge to adapt in the future, and allowing students to have their own research. The 4<sup>th</sup> group, other subjects, such as research, have a lot of steps, using data analysis program It takes more time to understand.

### **4.3 Student research**

Research results and research quality levels of 58 students from the Research Based Learning teaching in 2 sections. A total of 33 research found that, the management of RBL in curricula and teaching in the second semester of the academic year 2020 has completed the research of the students, and passed the criteria considered 26 cases 78.79%. There were 47 researchers 81.34%, while the research results did not pass the criteria 7 subjects 21.21%, with 11 researchers 18.96%, of which there were 6 very good research, assigned advisors to improve and develop submitted for publication in CTI journals consisting of 3 topics.

## **12. Discussion**

The opinions about the teaching skills of teachers by using Active Learning concepts in teaching RBL according to the evaluation of the students found that, the efficiency of the teachers have the highest mean, but the teaching skills components RBL also has low evaluation, including, The instructor spends more time in conducting

research activities than other activities. The instructor has enough outside learning resources to organize the teaching and learning activities, the teachers reduce their roles. Is only a guide, research practice more than exams, and students are able to understand the content by themselves is the item that has the lowest mean of item in each dimension, Because of the teacher chooses to use the method of teaching RBL For students to learn by doing research Corresponding to The proposed RBL learning management model by Somwang Phithiyauwat (Phithiyauwat & Boonterm, 1994) proposed 4 research-based teaching methods. The 1<sup>st</sup> form is teaching by using the research process, it's for students to practice in research at various levels, such as doing experiments in a science laboratory, Case Study, project task, document research, Baby Research or thesis, But in this experimental course, the course and instruction Very informative And there are 2 parts that are clear about the curriculum and teaching which must be equally weighted The research assignments are only 1 / 4th of the content (25%). Students therefore see that the activities and time for research insertion are minimal. Because you have to put other activities that meet other content To cover as well Causing the distinction of the research to be insufficient as it should not be what the students expected.

Comparison of Mean grades between samples students taught by instructors using Active Learning concepts in teaching RBL with a group that has general teaching. The independent t-test showed that the achievement was not statistically significant. This is because of the teachers in the general teaching group also emphasize on the learners' achievement as well as the learning objectives. That is to say, the Active Learning concept is also taught, but different that not just using research assignments, showing Learning and teaching management that enable students to achieve their objectives can use Active Learning in many ways. Teaching based on Active Learning concepts with RBL teaching is another option from many options.

The results showed that the RBL teaching methodology was the research work of the completed students. And passed the criteria of 26 cases, 78.79%, 47 researchers, 81.34%, although the proportion is quite high out of these 6 very good research and submitted for publication in 3 CTI base journals. There are still some work that does not meet the criteria. This is due to with less research time, only one day of study the learners will have less time to study, most of the time the students spend more time on their work than research.

### **13. Suggestion**

#### **Suggestions from research findings**

The research results showed that outcomes of the students that did not meet the criteria, there are 7 topic, 21.21 %, of which 11 researchers 18.96 % are important observations. For teachers who want to use the RBL method on the next occasion or in teaching other subjects should consider the following:

1) should consider the content of that course must be the same subject in both subjects A single research that covers all content is more appropriate to use RBL.

2) Students should consider how appropriate they are to spend time outside of the classroom to study If students have limited time outside of the classroom, other techniques may be used instead.

3) The teaching should be considered in general as to whether there is a format that facilitates research Since the use of the RBL teaching process requires continuity And close in consultation.

#### **Suggestions for conducting future research**

There should be a study of 3 other RBL teaching styles which are 1) teaching by the students to join the research project with the teacher. Or as an assistant in a research project (Under Study Concept) or 2) by teaching students to study research to learn knowledge or 3) teaching by using research findings in teaching, Is for students to be aware that theory of new knowledge In their current sciences, or other Active Learning teaching methods, as an alternative to modern teaching.

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