

# Model of Appropriate Science Teaching for Mathayomsuksa 3 (Grade 9) in Ang-Thong Province

Lertlop, W

**Abstract**—This research aims to study the appropriate model of Science teaching for students, academic achievement and to survey students' attitudes toward using appropriate for students in Mathayomsuksa 3 in Ang-Thong province. The research results were as follows:

1. The appropriate model of Science teaching for Mathayomsuksa 3 students in Ang-Thong province including these following five steps: Step 1. The introduction of the lessons. Step 2. Setting the hypothesis. Step 3. Doing the experiment /survey. Step 4. Making conclusion. Step 5. Applying to daily life or other subjects.

2. There is no significant difference between using appropriate model teaching and regular teaching at 0.05 level significant difference.

3. There is a significant difference between before and after teaching using appropriate model of Science teaching at 0.05 level.

4. The satisfaction of students' attitudes to using the appropriate model of Science teaching for students was in intermediate level.

**Keywords**—Pedagogy, science teaching model, Ang-Thong province.

## I. INTRODUCTION

THE evaluation of teaching and learning of science has found that academic achievement is lower than the standard. When being compared with countries, Thai students also have less ability than students in other countries.[1]

The process to solve the problem is to model good teaching which is appropriate to students and the needs of learners. This will give students a positive attitude in science which will result students to learn science and increase student achievement along with the design of learning, must be provided for students. And an environment that fosters students to learn and be encouraged to respond. Furthermore, diversity available to students who have an interest in learning. Besides, the style of teaching to the students and teachers are moving to and interact with each other [2]

Ang-Thong is a small province comprising seven districts. The districts have a distance average between 8 to 10 kilometers. So, the contexts are very similar that seem almost to be no difference between each district. [3]

From the above reasons, the researchers think that it is important to identify and solve the problems by doing a study case to find teaching strategy that is most appropriate for Mathayomsuksa 3 (Grade 9).

Lertlop, W is with the Faculty of Sciences and Technology, Suan Sunandha Rajabhat University, 1 U-tong Nok Road, Dusit, Bangkok 10300, Thailand (e-mail: wichan06@hotmail.com).

## II. PURPOSE

1) To study the appropriate model of Science teaching for students in Mathayomsuksa 3 in Ang-Thong province.

2) To compare their academic achievement between using appropriate model of Science teaching and regular teaching.

3) To compare their academic achievement before and after using appropriate model of Science teaching

4) To survey students' attitudes toward using appropriate for students in Mathayomsuksa 3 in Ang-Thong province.

## III. SCOPE

This research has defined the scope of the research are as follows.

### 1) *Scope of the Population*

The population are the science teachers who teach science to Mathayomsuksa 3 students and Mathayomsuksa 3 students in Ang-Thong province.

### 2) *The Scope and Content*

This research was a science-based curriculum; work and energy content.

### 3) *The Scope of the Variables*

Independent variable was the teaching of science.

Dependent variable were academic achievement and students' attitudes toward using appropriate teaching for students in Mathayomsuksa 3 in Ang-Thong province

### 4) *Scope of the Time*

The period which was used in this study was started in October, 2010 to August, 2011.

## IV. METHODS

This research study was conducted a sequence of activities operate as follows.

1) Interviewed Mathayomsuksa 3 about the needs and the attitudes of science teaching to find basic information.

2) Interviewed teachers who taught MathayomSuksa 3 about the needs and the attitudes of science teaching to find basic information.

3) Created the model of teaching by a team of researchers.

4) Try teaching students by the teaching model, along with recording video.

5) Interviewed students after the instruction whether the students prefer this teaching style or they required the teacher to do more the improvement.

6) Brought the video tape to the teachers who taught Mathayomsuksa 3 for discussing about the teaching style and improved the model of science teaching.

7) Data from 5 to 6 was modified to create a new teaching by a team of researchers and specialists for science teaching.

8) A team of researchers and science teachers who taught Mathayomsuksa 3 discussed again to find the model of appropriate Science teaching in Mathayomsuksa 3.

9) Wrote the model of appropriate Science teaching in Mathayomsuksa 3, teacher role and student role.

10) Pre- test the group of students that would be taught by the appropriate science teaching.

11) One group was taught by the regular science teaching and the other one was taught by the appropriate science teaching model for 4 weeks

12) When completing the course, the research would be conducted as follows:

12.1) Let both groups of students do post-test after the instruction between the regular science teaching and the appropriate science teaching model.

12.2) Measured the attitude toward the science teaching that teach by using the model of appropriate Science teaching in Mathayomsuksa 3 in Ang-Thong province.

## V. RESULTS

The research result were as follows:

**Step 1.** Imported into the lessons.

There must be the questions about what teachers were going to teach to let the students focus on what they were studying and think about it. Let the students write down why they taught like that.

**Step 2.** Assumptions.

Let the students discuss and share their ideas about teacher's questions.

**Step 3.** An experiment /survey.

Students could check their ideas by the survey or experiment for collecting the information to conclude.

**Step 4.** To a conclusion.

Give students enough time for discussing about the questions by the reason and conclude the concept

**Step 5.** To support applications / tasks associated with daily life.

Teacher should create a question about the concept and the knowledge that they had received whether how they would apply in their daily life.

TABLE I

COMPARES THE ACADEMIC ACHIEVEMENT OF STUDENTS BY USING THE APPROPRIATE MODEL OF SCIENCE TEACHING TO STUDENTS IN MATHAYOMSUKSA 3 AND THE REGULAR TEACHING METHODS.

| Group                                 | N  | Average | sig   |
|---------------------------------------|----|---------|-------|
| Appropriate model of Science teaching | 39 | 13.69   | 0.195 |
| Regular science teaching              | 36 | 12.50   |       |

$\alpha = 0.05$

Calculated considering the sig was 0.195 which is higher than  $\alpha$  with  $\alpha = 0.05$  means that the achievement of the two groups did not differ.

TABLE II

COMPARES THE ACADEMIC ACHIEVEMENT OF STUDENTS BY USING THE APPROPRIATE MODEL OF SCIENCE TEACHING TO STUDENTS IN MATHAYOMSUKSA 3 IN THE CONTRACT BETWEEN BEFORE AND AFTER USING APPROPRIATE MODEL OF SCIENCE TEACHING

| Group      | N  | Average | SD   | t     | sig   |
|------------|----|---------|------|-------|-------|
| Pre-test   | 39 | 11.43   | 3.56 | 2.189 | 0.035 |
| Post-test. | 39 | 13.69   | 4.32 |       |       |

$\alpha = 0.05$

Considering the results of the .035 sig was less than  $\alpha$  by  $\alpha = .05$  means that the score of the students have a learning difference.

TABLE III

STUDENTS' ATTITUDES TOWARD USING APPROPRIATE FOR STUDENTS IN MATHAYOMSUKSA3 IN ANG-THONG PROVINCE.

| No. | passage   | $\bar{x}$ | SD   |
|-----|---|-----------|------|
| 1   | Teaching styles are integrated.   | 3.789     | 0.66 |
| 2   | Teaching model encourages experimentation.  | 3.763     | 0.75 |
| 3   | The model of teaching makes the lesson interesting.   | 3.552     | 0.83 |
| 4   | Teaching model supports students' thinking.   | 3.868     | 0.81 |
| 5   | Teaching styles makes student join activities together.                                     | 3.789     | 0.81 |
| 6   | Teaching styles make the lesson less stressful.   | 4.184     | 0.95 |
| 7   | The model of teaching is to learn and to play.  | 4.315     | 0.87 |
| 8   | The model of teaching makes the students want to learn Science.                             | 3.789     | 0.84 |
| 9   | The model of teaching makes the students take notes.  | 3.71      | 0.93 |
| 10  | The model of teaching makes students feel that the learning concerns with their daily life. | 4.289     | 0.73 |
|     | The average value.  | 3.7895    | 0.66 |

These are the opinions of students' attitudes toward Science teaching model for Mathayomsuksa 3 was in intermediate level. But considering all that is, the model of teaching was to learn and to play, The model of teaching made students feel that the learning concerns with their daily life, the model of teaching made the lesson less stressful, the model of teaching supported students' thinking in high level.

## VI. DISCUSSES

There are five basic styles for the Science teaching given by the principles from the Institute for the Promotion of Teaching Science which was published. But the science teaching that is appropriate for Mathayomsuksa3 students in Ang-Thong province has the different details which are experience. The different ideas of the teachers in this area. Moreover, paying

attention to students' role and students' thinking makes students become part of the activities and have the interest in the lesson for all the time.

When compare their academic achievement between using appropriate model of Science teaching and regular teaching, two groups did not differ.

Because the period which was used for the research was not enough for student to learn. Changing the behavior of learning takes a long time. But there are some troubles about the limit of the school that cannot release enough time for students to learn. Moreover, the content was an abstract so that cannot be seen the difference. The average score of the students who were taught by the model of appropriate science teaching tended to be higher than the average of students who were taught by the regular teaching. Furthermore, the teacher didn't have the degree of education and have a little teaching experience.

The students' attitudes toward Science teaching model for Mathayomsuksa 3 was in intermediate level. It might be because the time was too short to teach. But considering all that is, the model of teaching was to learn and to play, The model of teaching made students feel that the learning concerns with their daily life, the model of teaching made the lesson less stressful, the model of teaching supported students' thinking in high level.

Positive attitudes of students and awareness are importance to enable the students to obtain of a higher academic achievement. The predictions and expectations, based on the concept of Bloom said that "Those with high academic achievement will have improve the positive attitude. On the other hand, positive attitude will improve academic achievement." [4] Moreover, It is also consistent with the research of John W. Butter Massage, L. William Linz and Roy A. Drake that studied the relationship between attitudes toward chemistry and chemistry achievement with university students. The sample consisted of 103 male students who studied chemistry at the Institute of Management Maine Maritime. It was found that Attitude toward chemistry, Attitude toward the teaching method. And the attitudes related to the achievement of chemistry statistically significant at the .05 level. [5] Mohammed Suliman Abdulrahman Al-Ruwashid studied the effect of lectures and laboratory instruction includes lectures on chemistry achievement and attitudes toward science of secondary school, Saudi Arabia showed that the attitude toward science was related to the achievement of Chemistry statistically significant at the .05 level. [6]

## VII. SUGGESTIONS

1) Should apply this model to teach students to use at least one semester and notice the students' learning behavior in order to examine and confirm the model of appropriate Science teaching.

2) Should assess the result of this model by observing students' behavior to make an improvement.

## REFERENCES

- [1] Rung keawdang.(1998) Revolutionized the study of thai. 2nd edition. Bangkok. pikanet Printing Centre Co.
- [2] Wichai wongyai. (1999) Powerful new learning paradigm. Bangkok: SR Printing Partnership Limited.
- [3] Education Area, office. (2007) Education Development Plan. Ang thong Office.
- [4] Bloom, Benjamin S. (1976). Human Characteristics and School Learning. New York : McGraw-Hill.
- [5] John W. Butter Massage, L. William Linz and Roy A. Drake. (1997). study of the interrelations of attitude and achievement measures in an Audio-Tutorial College chemistry course Journal of Research in Science Teaching Volume 14, Issue 1 January 1977.
- [6] Mohammed Suliman Abdulrahman Al-Ruwashid. (1984) The Effects of a Lecture-only and Lecture-laboratory Approach on Riyadh Junior College, Saudi Arabia Chemistry Students' Achievement and Attitudes. University of Northern Colorado, Department of Science Education, spring quarter, 1984. Major advisor, Kenneth V. Olson., 1984.