



# THE STUDY AND DEVELOPMENT OF STUDENT LEARNING PERFORMANCE ON THE LINEAR EQUATION SYSTEM WITH TWO VARIABLES TOPIC BY USING EXIT TICKET STRATEGY AMONG 9<sup>th</sup> GRADERS.

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## INTRODUCTION

Learning mathematics was challenging since it was related to the calculation, the concept conclusion and the reasonable structure with particular mathematics rules and symbols. As such, learning mathematics was challenging to understand. This may be the reason why the study on mathematics was not too successful in the past.

To tackle this problem, the activities provided in the study of mathematics should be various and appropriate to the students with different levels of performance. In doing so, it would help develop the students' capacity and especially it was related to the current revolution of educational learning process.

The researcher took this issue into account and viewed that it was necessary to enhance the students' performance in studying mathematics. Therefore, the Exit Ticket in the form of assignment or short questions was initiated and given to the students after the class. The teacher collected the information gained from this Exit Ticket to assess the understanding of individual students. The questions in this Exit Ticket were specific to the main concept of lesson and corresponded with the lesson's objectives. The lesson was on solving problem of the linear equation. This activity initiated to attract the students' attention and especially to encourage them to have more understanding on the lesson of Linear Equation System.

## OBJECTIVES

To compare the pre and post achievement of three groups of students: the students with high performance, neutral performance and poor performance by applying the Exit Ticket activity in studying the Linear Equation System with Two Variables.

## METHODOLOGY

The research followed these steps:

1. Identify the targeted population and sampling group – The target group was selected from the total of 526 students in the 9th Grade of Samut Prakarn School under the Secondary Educational Service Area 6. Finally, the research was specific for 48 students of the class number 12. The research was made on the 1st semester of 2017 academic year.
2. The Study tools:
  - 2.1 Exit Ticket for studying mathematics on the Linear Equation System for the 9th Grade students
  - 2.2 Pretest and Posttest on the Linear Equation System for the 9th Grade students, subjective test (10 questions)
  - 2.3 The performance tests on the Linear Equation System for the 9th Grade students comprising of the subjective test (20 questions) and the objective test (5 questions)
  - 2.4 Lesson Plan on teaching the Linear Equation System for the 9th Grade students of Samut Prakarn School problem of the linear equation. This activity initiated to attract the students' attention and especially to encourage them to have more understanding on the lesson of Linear Equation System.

## DATA ANALYSIS METHOD

The research was the Quasi-Experimental research and applied the One-Group Pretest Posttest Design as the data analysis method.

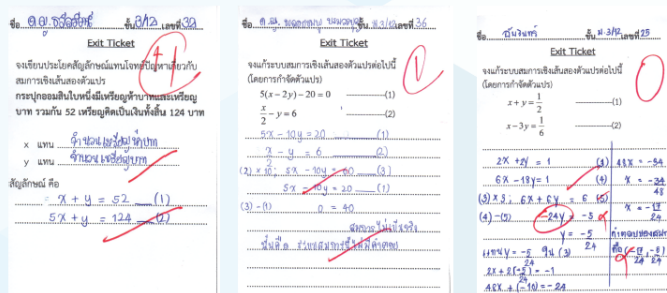
The Pre-test was provided to the sampling group (48 students of the 9th Grade, class 12) to evaluate their performance on the Linear Equation System.

Then, the teaching on the Linear Equation System for the 9th Grade students was conducted as specified in the lesson plan. This lesson consisted of 18 modules, consuming 18 hours.

The Post-test was provided to the sampling group (48 students of the 9th Grade, class 12) to evaluate their performance on the Linear Equation System.

The evaluation was made by comparing the results of pre-test and post-test and analyzing the data statistically through the Microsoft Excel program.

## RESEARCH OUTCOMES



The research's target group was 48 students in the 9th Grade, Class 12. The research duration was made on July 25 – August 26, 2017.

According to the Pre-test that was the objective test comprising of 10 questions for 30 minutes, it was found that the groups of students with different performance gained different level of average score. To clarify, the group of students with high performance (12 students) gained the average score of 5.24. The group of students with neutral performance (21 students) reached the score of 4.12. The last group of students with poor performance (15 students) gained the average score of 2.85.

Comparing with the Post-test that was the subjective test comprising of 10 questions for 30 minutes, it could be seen the different performance levels of different groups of students. The students with high, neutral and poor performance gained the average score of 7.93, 5.32 and 3.63 respectively.

Another Post-test that was the objective test was found different results. The students with high, neutral and poor performance gained the average score of 9.86, 7.93 and 5.32 respectively. The score to evaluate their progress in learning was increasing to reach 3.63 points.

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## CONCLUSION AND DISCUSSION

Considering the answers of students, it enabled the teachers to identify the level of understanding of the students and their misconception. This helped the teachers to be able to correct the misconception to individual students. The examples of misconception were raised for studying in class. The students therefore were corrected their misconception on the study of Linear Equation of Two Variables. In the same time, the teacher was able to learn from this assessment and improve their teaching in the future.

After providing the activity of Exit Ticket, it could be seen that the students had higher performance in study. This was concluded from the scores after implementing the Exit Ticket that was higher before the ones before applying this activity. The average score increased to 3.63 whereas the scores of the post-test were progressed to 3.52 points on average.

## References

Institute for the Promotion of Teaching Science and Technology, Ministry of Education. 2011. Basic Curriculum Textbook on Mathematics 1 for the 9th Grade students. Bangkok: Office of the Welfare Promotion Commission for Teachers and Educational Personnel. 1st Edition.