THE DEVELOPMENT OF LEARNING ACHIEVEMENT AND LEARNING BEHAVIOR ON MATHEMATICS THROUGH THE ACTIVE LEARNING FOR PRIMARY 3 STUDENTS AT DEMONSTRATION SCHOOL OF SUAN SUNANDHA RAJABHAT UNIVERSITY

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ABSTRACT

This research aims to compare the achievement in mathematics of primary 3 before and after active learning of Demonstration School of Suan Sunandha Rajabhat University, which is studying in the first semester of the academic year 2022, consists of 9 items, which are derived from purposive technique, the research tools are (1) the Mathematics Achievement Test, which is a 4 choice test of 30 questions, (2) a learning behavior assessment of 9 items, the basic statistics used are percentage, mean, standard deviation (S.D.) Post-school achievement averaged 26.61, representing 85.74 percent. It has an average of 16.09, representing 51.92 percent, where post-test achievement is higher than pre-test. The average was higher than 10.52 percent, representing 33.92 per cent, which suggests that using an active learning model can result in higher student achievement (2) The results of the analysis of data from the Learning Behavior Assessment model on the organization of learning activities after the use of hands-on learning management. Mathematics found satisfaction with hands-on learning Overall, it's at its highest level with an average of 4.27 when considered on a descending basis, it was found that learners paid the most attention to what they were learning with an average of 4.97, learners are focused on their studies. It has an average of 4.87 and learners use reasoning to make decisions in different situations it has an average of 4.19

Keywords: Active Learning, Achievement, Behavior

INTRODUCTION

Mathematics played a crucial role in learning in the 21 centuries, corresponding to Amphon Makanong (2014), who says that in modern times human social activity is becoming more complex. This allows human beings to be creative, think logically, systematically with stereotypes able to analyze problems or situations carefully and thoroughly helping to anticipate plan determine Solve problems correctly and can be used effectively in real life. In addition, mathematics is a tool for the study of science, technology, and general science which is the foundation for the development of quality national human resources and the development of the country's economy in the way that is comparable to the economic condition's society

and scientific and technological knowledge are rapidly advancing in the era of globalization (Office of the Basic Education Commission, Ministry of Education, 2018, p. 1)

Mathematics in primary 3 contains the following content learned: Counts do not exceed 100,000, addition and subtraction counts that do not exceed 100,000 times, length measurements, weight measurements, volumetric measurements, money, geometry one-way charts and tables, fractions, divisions, and multiplication The researchers recognized the importance of multiplication, as determined by the Ministry of Education, that at the end of the chapter, students must be able to (1) find the multiplication in the symbolic sentences showing the multiplication of 1 digit with no more than 4 digits, and 2 digits with 2 digits (2) be able to find the unknown values in the symbol sentences showing the multiplication of 1 digit with no more than 4 digits and the number of 2 digits with the number of 2 digits (3) can show how to find the answer to the problem of multiplication and (4) create a multiplication problem from the teaching of mathematics primary 3 of Demonstration School of Suan Sunandha Rajabhat University. An exam measuring achievement in multiplication revealed that some students were unable to find the correct multiplier because they did not understand the skills and processes as well as the procedures for finding answers to multiplication. This causes students to have skills problems in the field of multiplication

Therefore the researcher studied how to manage active learning to encourage students to develop critical thinking abilities and improve learners' achievement in multiplication which is consistent with (Judgment Commerce, 2013; Settle, 2011) experience Collecting information and summarizing opinions using a variety of learning management activities is interesting which encourages learners to apply their previous knowledge and experiences In addition Medicine Studies, PSU (2016: 2) has stated that active learning will give importance to the nature of activities in the process of learning skilled in both conceptual and technical methods to perform tasks and solve real-life problems learners can discuss and write communicate what they learn criticize argue between friends and instructors. Learners can also systematize thinking and discipline the problem-solving processes responsible for selflearning and there are many names in Thai such as hands-on learning, experiential learning and active learning

Based on the above information the researchers recognized the importance and implemented a plan for active learning activities to enable learners to improve their academic achievement and learning habits in mathematics on the multiplication of primary 3 students, 1st semester academic year 2022, Demonstration School of Suan Sunandha Rajabhat University.

OBJECTIVE

1. To compare the mathematics achievement of primary 3 before and after active learning
2. To study learning behaviors by managing active learning of primary 3 students in mathematics

METHODOLOGY

This research is research to improve academic achievement and learning behavior in mathematics by organizing active learning for students in primary 3 of Demonstration School of Suan Sunandha Rajabhat University with details of how the research was conducted as follows

1. Population and samples

The population used in this research was 92 students in primary 3 of Demonstration School of Suan Sunandha Rajabhat University

The sample used in this research was 31 students in primary 3/1 of demonstration school of Suan Sunandha Rajabhat University studying in semester 1 of the 2022 academic year which was purposive technique

2. Research instruments

1. The mathematics Achievement Test is 4 choices with 30 questions for a total of 30 points, which takes 60 minutes

1.1 Study mathematics course description according to the course

1.2 Study textbooks mathematics subjects

1.3 Create a learning objective analysis table that corresponds to the content of mathematics subjects

1.4 Create 4 choices mathematics achievement test of 30 questions created in accordance with the learning objective analysis table and then present the test to the expert and revise it according to the instructions

1.5 Revise the achievement test according to the instructions

1.6 Take the updated test to a mathematics teaching specialist and measurement and evaluation to verify its validity this includes the comprehensiveness of the questions by considering the IOC (Index of Objective Congruence) in which a good test should have an IOC value of not less than 0.5 (Vejrit Ankanaphatrakhajorn, 2012, 160) The criteria for consideration are as follows

+1 score for exams that correspond to learning objectives

0 score for exams that are not sure they align with learning objectives

-1 score for exams that do not correspond to learning objectives

1.7 Revise the mathematics achievement test, which answers 4 of the 30 options based on the recommendations and then proposes them to the experts for reconsideration to check for accuracy, done

1.8 An improved English language achievement test was tested on 31 non-sample third graders to determine the quality of the test

1.9 Analyze the test results individually for difficulty (p) and classification authority (r), and then select four choice tests with difficulty values (p) between .20 - .80 and classification authority values (r) .20 or higher

1.10 The selected test was tested on 30 primary 3 who were not sampled to determine the accuracy/certainty of the test, calculated from Kronbach's alpha coefficient formula (Vejrit Ankanaphatrakorn, 2012, p. 161)

1.11 Take the complete achievement test and experiment with the sample

2. Learning Behavior Assessment

2.1 Learn how to create a learning behavior assessment for hands-on learning management Active Learning mathematics.

2.2 Create a learning behavior assessment for hands-on learning management, Active Learning, mathematics primary 3 as a rating scale based on 9 Likert methods.

2.3 Direct the experts to check their suitability and then apply the learning behavior assessment to improve according to the recommendations.

2.4 The assessment of learning behavior towards hands-on learning management, Active Learning, mathematics subjects were tested on 31 non-sampled primary 3 students and determined for consistency and suitability.

3. 8 Active Learning management plans

3. Data Collection

The researcher followed the following steps

1. The researcher prepares the students as a sample.
2. Clarify to the sample how to use the active learning model in teaching and learning so that students can act correctly
3. Conduct mathematics learning activities using the active learning model of primary 3
4. Once the active learning activities have been completed as planned students must take the mathematics achievement test then score the test and record the scores for data analysis
5. Take the scores obtained from the sample student achievement test and analyze the results by statistical methods and summarize the findings

4. Analysis

In this research the data were analyzed in the following order

4.1 Find basic statistical values including percentages arithmetic averages and standard deviations

4.2 Find the statistical values used to verify the quality of research tools including conformity index values

4.3 Find statistics to test hypotheses including one sample t-test

RESULTS

Improving academic achievement and learning behavior by managing mathematics subject learning by managing active learning for primary 3 students, Demonstration School of Suan Sunandha Rajabhat University. Researcher presented the results of sequential data analysis as follows

1. Symbols used to present data analysis results
2. Presentation of data analysis results
3. Data analysis results

Table 1 The results of the comparison of test averages between pre-test and post-test with the management of mathematics learning by Active Learning management

Evaluation (30 points)		Improving academic performance			
Pre-test	Percentage (%)	Post-test	Percentage (%)	Score	Percentage (%)
16.09	51.92	26.61	85.74	10.52	33.92

Table 2 Averages standard deviations and assessments of learning behavior after the use of the Active Learning Management model in mathematics subject

	Satisfaction level		
Description	$\bar{X}$	**S.D.**	**Level**
1. Learners are attentive to what they learn	4.97	0.18	very good
2. Learners are self-disciplined	4.03	0.37	good
3. Learners submit their work on time	4.09	0.95	good
4. Learners are focused on their studies	4.87	0.43	very good
5. Learners use reasoning to make decisions in different situations	4.19	0.74	good
6. Learners distinguish what to do and what not to do	4.13	0.88	good
7. Learners know how to use media and technology appropriately	4.16	0.93	good
8. Learners review the material they have learned	4.06	0.99	good
9. Learners summarize their priorities and write down key points	3.94	0.89	good
Total	**4.27**	**0.76**	very good

CONCLUSIONS AND DISCUSSIONS CONCLUSIONS

Improving academic achievement and learning behavior in mathematics subject by managing active learning for primary 3 students, Demonstration School of Suan Sunandha Rajabhat University summary of findings

1. Comparison of pre-test and post-test achievements of students in primary 3, Demonstration School of Suan Sunandha Rajabhat University. Post-test achievement averaged 26.61, representing 85.74 percent higher than pre-test achievement which averaged 16.09, representing 51.92 percent an average of 10.52 percent, representing 33.92 percent showed that using an active learning model can result in improved student achievement.

2. Data analysis results from the Learning Behavior Assessment After using the active learning model in mathematics it was found that students in primary 3 of Demonstration School of Suan Sunandha Rajabhat University there are learning behaviors towards active learning in mathematics with an average of 4.27 when considered on a descending basis. It was found that

learners paid the most attention to what they were learning with an average of 4.97, learners are focused on their studies it has an average of 4.87 and learners use reasoning to make decisions in different situations it has an average of 4.19.

Discussions

The research results showed the development of academic achievement and learning behavior in mathematics by organizing active learning for students in primary 3, Demonstration School of Suan Sunandha Rajabhat University. Post-test achievement averaged 26.61, representing 85.74 percent higher than pre-test achievement, which averaged 16.09, representing 51.92 percent. The average was 10.52 percent higher representing 33.92 percent, which showed the use of active learning management models can result in higher student achievement. It has been shown that the use of active learning can result in improved student achievement and based on the results of the analysis of data from the satisfaction questionnaire on the management of learning activities after use of active learning in mathematics, it was found that the satisfaction with active learning management as a whole was the highest level with an average of 4.27 when considered on a descending basis, it was found that learners paid the most attention to what they were learning with an average of 4.97, learners are focused on their studies. It has an average of 4.87 and learners use reasoning to make decisions in different situations. It has an average of 4.19.

Recommendations

1. Active learning Mathematics subject should involve learners in the design of learning activities in areas of interest to them and should be integrated with various subjects.

2. Active learning to improve academic achievement and learning behavior in mathematics by proactively managing learning for students in primary 3 who are students in the junior elementary school level.

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