A COMPARISON OF SCIENCE SUBJECT LEARNING ACHIEVEMENT OF PRIMARY 3 STUDENTS TAUGHT BY 4 MAT SYSTEM LEARNING MANAGEMENT AND ORDINARY LEARNING MANAGEMENT.

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ABSTRACT

The purpose of this research was to compare the science achievement of Prathom Suksa 3 students during their learning according to the 4MAT learning cycle and normal learning management. The Sample is Prathom Suksa 3 students, Suan Sunandha Rajabhat University Demonstration School, 2 classrooms, 30 students each, Semester 1, Academic Year 2018, by using the cluster random sampling. The research instruments were 7 sheets of the 4MAT learning cycle Model management Plan, 40 items of Learning Achievement Tests. Statistical analysis by using data such as Mean ($\overline{X}$), Standard Deviation (S.D.).

The results showed that the science achievement of Prathom Suksa 3 students studied in accordance with the 4MAT learning cycle Model management Plan, and normal learning management is different, by the 4MAT learning cycle Model management Plan had significantly higher learning outcomes than normal learning at .05 level.

Keywords: 4MAT learning cycle Model Management, Normal Learning Management, Science Learning Achievement.

INTRODUCTION

Today's world society is changing rapidly, especially in science and technology, affecting things on the planet, because science involves humans in daily life, work, and various appliances. Derived from knowledge in science and technology. Education is absolutely necessary to organize learning processes in science. Focusing on practicing thinking process skills, managing, and applying to solve problems, organizing activities to learn from real experiences. The development of teaching and learning processes is the key to learners to learn and develop as much as possible according to their potential [8]. Therefore, teachers must design quality learning activities, and in accordance with the concept of knowledge creation for students through activities, and the various processes, including implementation, query manually, can be associated knowledge from previous experience, and new knowledge so that the knowledge retention [9].

From the study of science teaching methods for elementary school students, it was found that the 4MAT learning cycle Model management is a model that organizes teaching and learning with regard to student differences, focusing on the development of the two brain hemispheres and the learning process of using feelings [4], receiving the experience of what to study, and have imagination about that, beginning with learning by using the cerebral hemisphere, followed by alternating left cerebral hemisphere, into a cycle and ends with the right hemisphere, while learning, the learners go through the process of seeking knowledge, thinking skills, and implementing successful learning, in which the 4MAT learning cycle

Model management, that is to say, learners have two types of learning, namely concrete and abstract learning, to develop into a teaching model that emphasizes the different types of learners. Type 1. students who feel imagining, Type 2. Students who are good at analysis. Type 3. Learners who are good at using common sense, and Type 4. The student aptitude to modify by allowing all learners to go through all the steps in a cycle, which has 8 steps [5], and in addition, the concept of brain development, helps in the organization of teaching and learning activities, using development techniques both left and right cerebral hemispheres. This type of learning, allows students to learn according to their own characteristics and aptitudes, some activities will respond to each type of learners, happy during the activities that they are good, and feel challenging. Thus, resulting in boredom, because the students are different, both the intellectual structure, the learning mechanism, and the functions of the brain are different, thus opening the opportunity allow students to express their full potential [6].

From the teaching and learning in science subjects of Prathom Suksa 3 students, Suan Sunandha Rajabhat University Demonstration School, found that the average learning achievement is relatively low, from the initial data collection. It was found that the students lack enthusiasm, unable to connect what they have learned to their daily lives, or from their previous experiences, because of this reason the researcher chose to use the 4MAT learning cycle model management, to help Students are successful in science, encouraging students to enjoy each part of their studies, which is consistent with the concept of Bernice McCarthy, said that the process of the 4MAT learning cycle model management, as well as the nature of the group 4 features together, led by the left cerebral hemisphere and the right cerebral hemisphere come together in balance.

RESEARCH OBJECTIVES

The purpose of this research is to compare the science learning achievement of Prathom Suksa 3 students while learning according to the 4MAT learning cycle model management and normal learning management.

RESEARCH HYPOTHESIS

The Science Achievement of Prathom Suksa 3 Students, who study according to the 4MAT learning cycle model management and normal learning management were different.

RESEARCH METHODS

1. Sample

This sample group is students of Prathom Suksa 3 of Rajabhat University Demonstration School, Suan Sunandha, Bangkok, the academic year 2018, 2 classrooms, 30 students each, which were obtained by cluster random sampling, and the experimental group and control group were as follows, by Prathom Suksa 3/1 is an experimental group and Prathom Suksa 3/2 students are a control group.

2. Research tools

The 4MAT learning cycle model management plan for Prathom Suksa 3 students, in a total of 7 plans, which have been considered the suitability of learning standards, indicators, learning content, learning outcomes, learning activities, media, measurement, and evaluation. The results from the study of 3 experts, found that the Index of Item- Objective Congruence) (IOC) is between 0.50-1.00, that is, pass the criteria.

Test of achievement after the 4MAT learning cycle model management for Prathom Suksa 3 students is a 40 achievement test, an optional, which has passed the assessment of

that the Index of Item- Objective Congruence between the exam and the learning purpose, then the test is used with 50 non-sample students, in order to analyze the quality of the tests, found that that the Index of Item- Objective Congruence (IOC) was between 0.67 to 1.00, the difficulty (p) ranging from 0.35 to 0.63, there was discrimination (r) 0.20-0.80, the reliability of the test was 0.99.

DATA COLLECTION

The researcher collected data by himself at Suan Sunandha Rajabhat University Demonstration School, with the following steps:

1. The researcher conducted the test before class by having the students in the experimental group and the control group do the test, consisting of 40 items.
2. The researcher conducted the teaching according to the 4MAT learning cycle model management plan with the experimental group and conducted teaching according to the normal learning management plan with the control group.
3. At the end of teaching, students in the experimental group and the control group performed the post-test achievement test.
4. Scoring, after that the results are analyzed by using statistical methods to find the comparison efficiency.

DATA ANALYSIS

The researcher used the scores of the experimental group and the control group obtained from pre-school and post-school scores to analyze the data as follows:

1. Find the average and standard deviation, including comparing the pre-school scores of Prathom Suksa students 3 studied in accordance with the 4MAT learning cycle model management plan with normal learning management, using independent-samples t-test.
2. Find the average and standard deviation of post-academic achievement of Prathom Suksa students 3 studied in accordance with the 4MAT learning cycle model management plan with normal learning management, using independent-samples t-test.

RESEARCH RESULT

Table 1. Analyze the pre-school scores of Prathom Suksa 3 students studied in accordance with the 4MAT learning cycle model management plan with normal learning management.

Learning management (before learning)	**n**	$\bar{X}$	**S.D.**	**t**	**p**
Normal	30	7.07	2.38	.05	.96
4MAT learning cycle model	30	7.10	3.03		

From Table 1, it is found that the pre-school scores of Prathom Suksa students 3 studied in accordance with the 4MAT learning cycle model management plan and normal learning management were not significantly different at the .05 level, which showed that students in both rooms had no different knowledge.

Table 2. Analyze post-learning achievement of Prathom Suksa 3 students studied in accordance with the 4MAT learning cycle model management plan with normal learning management.

Learning management (after learning)	n	$\bar{X}$	S.D.	t	p
Normal	30	19.53	3.81	3.94*	.00
4MAT learning cycle model	30	24.04	4.97		

* Statistical significance at the level of .05

From Table 2: It is found that the post-learning achievement of Prathom Suksa 3 students learning according to the 4MAT learning cycle model management plan and normal learning management were statistically different at the .05 level, with students learning according to the 4MAT learning cycle learning plan had a higher learning achievement average than those who studied according to Normal learning management plan.

SUMMARY OF RESEARCH RESULTS

The Science Achievement of Prathom Suksa 3 Students who learned according to the 4MAT learning cycle management plan and normal learning management were significantly different at the level of .05, by students learning according to the 4MAT learning cycle management plan has higher learning achievement than normal learning management.

DISCUSSION

From the research, the comparison of the science achievement of Prathom Suksa 3 students 3 studied in accordance with the 4MAT learning cycle management plan and normal learning management, the researcher brought in the discussion as follows.

From the research, it was found that Prathom Suksa 3 students, who studied according to the 4MAT learning cycle management plan had a higher achievement in the science of strength and mobility than students receiving normal learning management, due to the 4MAT learning cycle management plan is a variety of activities, challenging the learners' ability, developing the potential of the learners, and making the students want to learn more, gives the students the opportunity to practice and interact with the environment. In which the learners have the opportunity to practice observation, by using thoughtful thinking [2] to create a learning experience, learners can also create the knowledge on their own. When the students to practice the activity continued for some time, would cause an ingrained knowledge, enabling learners Recognition in the content. As a result, the students who received the 4MAT learning cycle management had higher learning achievement than the students who received the normal learning management, and the 4MAT learning cycle management plan also takes into account the learning characteristics of all 4 types of learners. Type 1 is an imaginative learner, type 2 analytical learner, type 3 learners who use common sense, and type 4, a learner who is comfortable with the experience from action, which matches the concepts of [3], said that the Teaching and learning in accordance with the learning styles Learners will enable learners to understand the lessons faster, with higher learning achievement, and the 4MAT learning cycle management focuses on the students to learn from direct experience, experience and see importantly, what is learned, makes the learner aware of the aims and motivation of the study, which is consistent with the concepts of [10], said that the second of the 4MAT learning cycle management uses a variety of teaching methods, allowing all 4 types of learners to learn, create self-concept, have higher learning achievement, as can be seen from the research of [7] on a study of academic

achievement on stoichiometry and attitude towards science of Mathayom Suksa 5 students that received the 4MAT learning cycle management, found that students who received the 4MAT learning cycle management plan have higher academic achievement than students received the normal teaching was statistically significant at the .05 level, and the research results of [1] which studied the subject Learning development, by using the science activity that uses the 4MAT learning cycle management plan for Prathom Suksa 6 students, found that the learning achievement after learning by using the science activity packages, by using the 4MAT learning cycle management. The scores after the study were significantly higher than before learning at the .05 level.

SUGGESTIONS

Suggestions for utilizing research findings

1. Teachers should explain to students before beginning to study and should divide the groups so that each group of students has the ability to excel, medium, and mixed, in order to practice helping each other.

2. Learning management based on the 4MAT learning cycle management students must know to work as a group and use thinking processes, teachers should be closely consulted.

Suggestions for further research.

1. There should be a study of learning styles of learners individually, in order to compare the learning ability of each learner.

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