



APPLYING INQUIRY-BASED LEARNING TO ENHANCE STUDENTS' CONCEPTUAL UNDERSTANDING IN STUDYING SCIENCE ABOUT THE ATMOSPHERE

SALINTHIP PROMYONG

*Chevron Enjoy Science,
Baan Moolnark School, Khok Pho Chai, Khon Kaen,
Thailand*

INTRODUCTION

The content in science lesson of the 7th Grade on the atmosphere was found difficult to understand. This may be because the content was about the natural phenomenon whose learning model was imitated from the real phenomenon, such as, the simulation of wind, cloud, fog and steam, etc. Also, some students were unable to link the lesson content to the situations in daily life. Therefore, in order to provide profound understanding on the lesson of atmosphere, the teaching process should be based on "Constructivist Learning Theory." In other words, it was the process of learning new things based on the knowledge background of the students or developing their knowledge through learning experiences. The teachers were then required to find out the student's knowledge background and tried to link them with the new knowledge. To do so, the students were assigned to present their science concept to explain the natural phenomenon.

OBJECTIVES

The objective of this research was to analyze the conceptual learning processes using the "Inquiry based learning strategy" among the 7th Grade Science students covering the topic of "Atmosphere."

METHOD

The target group included 7 students in the 10th Grade. The research design was the Conceptual Framework of Quasi-Experimental Paradigm or Quasi Experimental Research Designs. The research tools were:

- 1 The science lesson plans about the Atmosphere conducting the Inquiry-based Learning.
- 2 The questionnaire about the Atmosphere and the semi-structure interview – They were used to compare the outcomes of before and after intervention.

ANALYTICAL METHOD

STEP 1 The questionnaire about the Atmosphere and the semi-structure interview were used to gain information on scientific concepts before intervention. The answers were analyzed and grouped by the types of scientific concepts categorized by the pattern of answers.

STEP 2 Design the lesson plan on the topic of "the Atmosphere" through Inquiry-Based Learning approaches.

STEP 3 The questionnaire about the Atmosphere and the semi-structure interview were used to gain information on scientific concepts after intervention. The answers were analyzed and grouped by the types of scientific concepts categorized by the pattern of answers.

References

- Kenan Institute Asia. (n.d.). **The Teacher's Manual on Natural Disaster**. (n.p. : n.p.). (Mimeographed).
- Wantipa Rodrangka. (1997). **Constructivism**. Bangkok: Department of Education, Faculty of Education, Kasetsart University
- Institute for the Promotion of Teaching Science and Technology. (2010). **The Teacher's Manual on Science 2, Grade 7, No. 2**. Bangkok: Office of the Welfare Promotion Commission for Teachers and Education Personnel. Lad Prao.

STUDY OUTCOMES

This research highlights four concepts as follows: a.) the concept on the five different types of storm. The majority concept was that the storm was a kind of strong whirlwind. b.) The concept on the five different types of airflow. Most students thought that the incensed smoke would float from the bottom to the top through two tubes of heat convection. c.) The concept on the four types of cloud. The major concept was that the cloud was the steam forming together and catalyzing by heat. d.) The concept on the ocean current and the world climate.

The students were provided the activity based on the Inquiry-Based Learning pedagogy; focusing on the students being the ones who expanding their own learning and knowledge. At the end of the study, it was found that the students had a better focused learning strategy; resulting in the expansion of relevant learning schema on the subject of science and the involved scientific lesson.



CONCLUSION AND DISCUSSION

According to the study of student's idea before providing the Inquiry-Based Learning, it could be seen that the students had diverse ideas. Most ideas were not related to the science concept of the lesson. After integrating Inquiry-Based Learning pedagogical activities in the classrooms, the study reveals greater understanding in their own learning processes. The students are encouraged to construct new knowledge based on their own experiential background. In the end, the study found that students had less different concepts with greater focused concepts relevant to the scientific lesson designed for the class.