

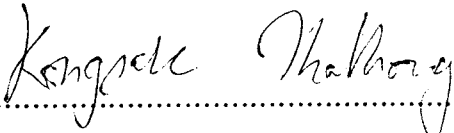
THESIS

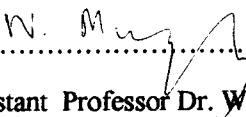
THE DEVELOPMENT OF SIMULATION TECHNIQUES IN
ENVIRONMENTAL SCIENCE TEACHING FOR MATHAYOM
SUKSA IV STUDENTS : AN ACTION RESEARCH


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ABSTRACT

The purpose of the present study was to develop simulation techniques through action research methodology with an aim of improving Mathayom Suksa IV (Grade 10) students' learning achievement in environmental science on the topic of " Man and Natural Resources. "

The research team consisted of the present researcher herself, two coresearchers and 40 Mathayom Suksa students from class 4/9 of Surawittayakarn School, Muang District, Surin Province during the first semester of the 1999 academic year. The study followed Kemmis and McTaggart's (1992) action research procedure. The students were administered a pretest on previous learning achievement prior to the step of investigating the problem, making a review of literature and preparing lesson plans basing on simulation techniques. The next step of action involved teaching by the present researcher by following the prepared lesson plans. In the step of observation the coresearchers did the observation of the teaching-learning activities and collected the data by using a teaching observation form. The students on their part was given an observation form to keep a record of their opinions of the teaching-learning activities. During this step, the researcher also kept a diary of daily events and interviewed the students. In the step of

reflection the coresearchers collected the data from their observation, reviewed the teaching-learning activities from a video tape and pictures taken with a camera for an analysis with an eye to adjust the remaining lesson plans to make them more effective. Also at the end of the experiment the students were given a posttest by using the same learning achievement test as the pretest. The data from interviews and the coresearchers' opinions, the pictures taken with the camera and the video tape were compiled for analysing, interpreting, summarising and testing for validity before writing a narrative report. In addition, the data were computed to ascertain the frequency and percentage of each interval of the students' learning achievement.

The findings showed that :

To make the teaching by applying simulation techniques more effective the teacher should rely on a variety of instructional media for an introduction to the lesson plans. The teacher should apply local environmental problems to construct a simulated situation for the students to study. The teacher should use diverse simulation techniques that fit in with the subject content, the students' ages and their interest. In presenting a simulation technique by using a role playing students should have opportunity to rehearsal. In presenting a simulation technique by using a case study, the narrator should speak with a loud voice and emphasize on the interesting points. If the presentation is done through a video tape, the teacher should distribute a list of suggested questions to the students prior to the viewing as a guide to grasp the main ideas. In addition, the researcher should create an intimate, friendly relationship with the students in order to encourage them to express their opinions, to participate in the planning of teaching-learning activity and to work with the teacher to correct flaws in the teaching.

The application of action research methodology to the development of teaching through simulation techniques helped the students gain knowledge, to become more enthusiastic for and enjoy the learning activities. They had a greater opportunity to participate in the teaching-learning activities. They discussed and exchanged their ideas freely and thus had become more outspoken and gained experience for the solution of problems. They had learned how to make rational decisions and were more ready to recognize other people's opinions. Furthermore, the students had made a higher learning achievement in environmental science on the topic of " Man and Natural Resources " after being taught through simulation techniques in accordance with action research methodology.