

SAWAI FUGKHAO : THE DEVELOPMENT OF INSTRUCTIONAL SYSTEM FOR MEANINGFUL LEARNING IN CHEMISTRY. THESIS ADVISOR : ASSO. PROF. TISSANA KHAMMANEE, Ed.D. THESIS CO-ADVISOR : ASSO., PROF. KINGFA SINTUWONG, Ed.D. 452 pp. ISBN 974-584-399-7

The purposes of this study were: (1) to develop an instructional system that could help students learn meaningfully in Chemistry, (2) to compare Chemistry learning achievement and attitude towards science between the experimental group learned by using instructional system for meaningful learning in Chemistry and the control group learned by using the traditional system. The findings were as follows:

1. The instructional system for meaningful learning in Chemistry which was developed were consisted of the following components:

1.1 The input was consisted of instructional objectives, content, students, instructional media, teacher, and measuring instruments.

1.2 The process was devided into two processes. First, was the process for Chemistry content teaching consisting pre-testing learners' basic concepts, presenting advance organizers, teaching content or concepts, having the students construct concept maps and evaluating learning outcome. Second, was the process for Chemistry content and laboratory teaching which follows the same process as the first one, only adding the construction of vee diagrams for each laboratory.

1.3 The output was consisted of Chemistry learning achievement and attitude towards science.

1.4 The controlling techniques were: questioning, observing students' behavior, giving attention and feedback to the students.

2. The system was tried out with students in Mathayom Suksa 5 of Pracharatuppatum secondary school in the first semester of 1993 academic year. Its results showed that the mean scores of Chemistry learning achievement and students' attitude towards science of the experimental group were higher than those of the control group at the .05 level of significance.