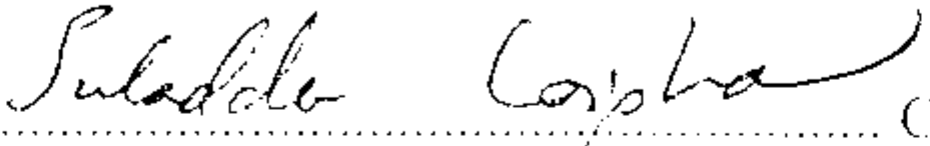
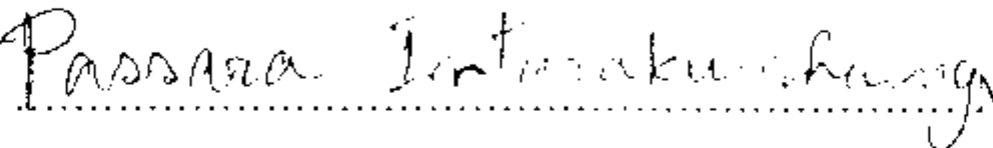


THESIS TITLE : THE DEVELOPMENT OF LEARNING MATHEMATICS  
USING PORTFOLIO FOR PRATHOMSUKSA III STUDENTS

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#### ABSTRACT

The objectives of this research were 1) to develop learning mathematics using portfolios; 2) to develop achievements in learning mathematics; and 3) to study results of portfolio use according to mathematics capabilities.

The research population consisted of 37 Prathomsuksa III students at Khon Kaen University's Demonstration School in the first semester of the academic year 1998.

The research tools were divided into 3 categories: 1) For experiments, i.e., 22 mathematics lesson plans by cooperative learning; 2) For experiment feedback, i.e., observation records on learning mathematics, result records on lesson plan use and skill practices, 3) For evaluation of form efficiency, i.e., Mathematics Achievement Test.

The was action research with 4 operational cycles: First, consisting of 1-6 lesson plans, Second, 7-11 lesson plans; Third, 12-16 lesson plans; and Fourth, 17-22 lesson plans, all using the already-created teaching forms. In data collection, the researcher

carried out observation and situation records as well as interviews to be analyzed for more effective lesson plans.

The findings were as follows :

1. This research developed mathematics teaching forms through portfolios with 5 major steps: Introduction \_ teachers informed of behavioral objectives and reviewed the previous learning; Presentation \_ of lessons to class as concept development with 4 sub-divisions : 1) presenting problematic situations; 2) understanding of them; 3) searching for ways to solve them; and 4) evaluating on those solving ways; Conclusion \_ students helped in concluding the concept and knowledge of principles gained from each lesson; Study of small groups \_ as the step for skill development in which students formed small groups and studied content cards, activity cards and checked answers from key cards; Application \_ student applied what they had learned to new situations by doing skill exercises and preparing portfolio.

2. Learning achievements : Students who had been taught mathematics patterns using portfolios through the developed process of action research had thus mathematics achievements, accounted for 81 % while 70% did not pass the criteria of 70% or over \_ this was due to : 1) students not familiar to teaching patterns; 2) difference in their mathematics background abilities; 3) difference in individuals; and 4) students' own concentration.

3. Steps of preparing portfolios were 1) planning; 2) collecting; 3) selecting; 4) expressing opinions or feelings towards work; 5) checking their own abilities; 6) work evaluating; 7) exchanging work experiences; 8) work revising; 9) systematizing portfolios; and 10) exhibiting of students' work revealing their mathematics capabilities through steps of really preparing portfolios.

4. Students having been taught mathematics patterns using portfolios were found to possess these favorable characteristics: small group-work skill, reciprocal help, self and group responsibilities and good attitudes towards mathematics.