

Thesis Title :        Designing Problem-Solving Activities to Promote  
                         Creative Abilities of Upper-Secondary School Students  
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### Abstract

The purposes of this research were to design the future problem-solving process activities to promote creative abilities and to compare creative abilities between science and non-science students. The samples were fifty-three upper-secondary school students studying in the first semester of the academic year 1991 at Maethevuthikorn School and Jakkamkanathorn School, Muang District, Lamphun Province. All of them volunteered to join the activities. There were thirty-nine science students and fourteen non-science students. The Creative Test, developed by Aree Rangsinun and staffs (1981), was used for pretest and posttest. The correlation coefficient of this test was 1.00. After pretest, the students worked on the provided six-step activities to solve two problems. The activities lasted fourteen weeks of altogether twenty-eight periods ( 50 minutes/period).

The researcher designed Teacher's Handbook, Students' Handbooks and Workbooks based on Crabbe's future problem-solving process (1989). The Wilcoxon Matched-pairs Signed-Ranks Test was used to compare the pretest and posttest scores between the two groups. The Mann-Whitney U-test was used to compare posttest creative ability scores. Besides, the researcher also analyzed the students' activities by observing their classroom behaviors, evaluating their workbooks, using rating scales and students' opinionnaires.

Data analysis indicated that after the planned activities, students' creativity test scores increased significantly at .05 level, particularly science students. But the non-science students' scores showed no difference between pretest and posttest. There was no difference of the posttest scores between science and non-science students. However, the students who were actively involved in the activities gained higher scores than the less active ones. These could be clearly seen from the quality of their workbooks and post-activity projects.