

Thesis Title : Development of a Mathematics Instructional Package  
on "Division" in Prathom Suksa 4

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### Abstract

This study aimed to produce a Mathematics instructional package on "Division" for Prathom Suksa 4 Students according to the standard criterion effectiveness of 80/80. Students's pretest and posttest achivement scores were compared and the behaviors of the students studied on this package were investigated.

The package was developed on the Dick and Carey Systems Approach Model for instructional design which included the following steps : 1. Identifying an instructional goal, 2. Conducting an instructional analysis, 3. Identifying entry behaviors and characteristics, 4. Writing performance objectives, 5. Developing criterion-referenced test items, 6. Developing an instructional strategy, 7. Developing and selecting instructional materials, 8. Designing and conducting the formative evaluation, 9. Revising instruction, and 10. Conducting summative evaluation.

The instructional package allocated 42 periods of time which divided into 3 periods (60 minutes) for each of 14 classes. Each lesson plan consisted of instructional analysis, concepts, behavioral objectives, learning/teaching activities (testing entry behaviors, introducing lesson, presenting contents, concluding lesson, applying remedial teaching) teaching/learning materials, measurement and evaluation, and appendise (study series, exersises, work cards, exercise keys, work card keys and games)

The samples studied were students of Prathom Suksa 4, Academic Year 2535, Sobchai School cluster, Maetha District Primary Education Office, Lamphun Province. The package was tried out in four rounds. First round, one to one testing, with two moderate learning achievement students from Ban Doi Koew Primary School. Second round, small group testing, was applied to 10 students with high, moderate, and low learning achievement in the same school. Third round, the large group testing, was applied to 50 students with high, moderate, and low learning achievement in Ban Sala Maetha Primary School nearby. All three rounds of testing were conducted for revising the package. The fourth round, the field testing, was applied to 18 students in Ban Rong Rua Primary School in order to compute standard criterion effectiveness of the package, compare students's pretest and posttest achievement scores, and to study students behaviors.

In conclusion, the standard criterion effectiveness of the package was 90.41/82.40, which was higher than the criterion proposed. Students's pretest and posttest achievement scores were found to be

statistically different at the .01 significance level. The students studied on this package showed much interest and enthusiasm in working, and cooperated in group participation and individual activities. Most students interviewed were preferred to the instructional package for their various materials and activities.