

Tiamyod Pasawano. 2002. *The Production of Instructional Videotape for an Experiment in Organic Chemistry on Hydrocarbon for Agricultural Students at Suranaree University of Technology*. An Independent Study Report for the Master of Educational Technology, Graduate School, Khon Kaen University. [ISBN 974-668-774-3]

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### Abstract

The objective of this independent study was to produce an efficiency instructional videotape for an experiment in organic chemistry on hydrocarbon.

The sample used in the experiment for trying out the efficiency of instructional videotape were 62 students of the first year in agricultural technology who were currently studying in the third term of the 2001 academic year at Suranaree University of Technology.

The instruments used in the independent study were.

1. Instructional videotape used in the teaching sessions of practice an organic chemistry in hydrocarbon substance.
2. Fifteen items of achievement test were the difficulty value (p) ranging from 0.38 to 0.78 , a discrimination power (r) between 0.20 to 0.63 and with the reliability of 0.74

To try out the instructional videotape for efficiency were divided into three steps: 1) one-to-one testing of 3 students; 2) small-group testing of 9 students; and 3) field group testing of 50 students.

The samples did the pre-test, learned from the instructional videotape and did the post-test. The scores of the tests were then calculated by using Hovland et al's solution for the effectiveness index.

**TE 131297**

The results of the independent study showed that the instructional videotape for an experiment in organic chemistry on hydrocarbon substance had effectiveness index 0.58. Therefore, the instructional videotape had achieved the objective of the independent study and would be used for actual teaching and learning in practical organic chemistry.