This study investigated the instructional efficacy of self study program, CAI which covered 9 surgical instruments used by the 4th year medical students of Faculty of Medicine, Siriraj Hospital.

The researcher constructed the CAI program, comprising 80 items of multiple-choice questions for measuring the learning efficacy in addition, a rating scale comprising 15 questions reflecting the efficacy of the program was designed into a questionnaire. The students were given a pretest prior to the administration of the CAI followed by a posttest after the CAI. Finally the students were given a rating questionnaire. The difference between learning rates when comparing the pre and posttest results were analyzed by Z-test and the arithmetic mean, standard deviation of each item in rating scale were calculated. The learning efficacy results showed that the students had gained significantly more knowledge at $p < 0.05$ after the CAI. The percentage of students who answered all 80 items correctly from pretest and posttest were 37.08% and 68.63% respectively. When classifying the learning outcomes of the students based on the 9 categories of instruments, the results showed that the students had gained significantly more knowledge ($p < 0.05$) in all categories of instruments. When classifying the learning outcome according to learning objectives, the result showed that the students gained significantly more knowledge 33 from 37 instructional objectives. The researcher revised 4 of the CAI lessons which had no significant change in learning outcome, and asked another group of students questions that corresponded to the 4 learning objectives. The result showed that the group gained significantly more knowledge in all of the 4 learning objectives. The result in the part of student's opinion to the CAI lessons showed that the advantages of the CAI lessons were : the relevance of the content to the stated learning objectives and the ease to learn. Suggestion included improving the clarity of description and the pictorial animation.