This research study aimed to develop, validate and test the effectiveness of Computer-Assisted Instruction (CAI) modules on selected topics in high school physics entitled Work, Power, Energy and Simple Machines.

The research and development cycle and the pretest-protest experimental design was used in the development and testing the effectiveness of the CAI modules. “Authorware” was the main authoring system used in developing the modules. Five (5) physics professors and physics teachers, two (2) computer experts and fifteen (15) fourth year students from various high schools evaluated the CAI modules before their effectiveness was tested. The CAI Evaluation Guide made by Ong (1990) was modified by the researcher and was used by the evaluators in rating the CAI modules. The effectiveness of the CAI modules was verified in two public high schools: the Sarrat National High School (SNHS) and the Mariano Marcos State University, Laboratory High School (MMSU-LHS), Batac Campus. Thirty (30) students each were randomly chosen from the first and third sections of the fourth year students of SNHS and MMSU-LHS to constitute the experimental group and the control group, respectively. The research instruments used were all pilot tested and validated to ensure their reliability. The gathering of data was conducted from January to March, SY 1998-1999. The t-test for independent samples, Two-Way Analysis of Variance, and stepwise regression analysis were used to analyze the data.

This study revealed the following findings: (1) The student evaluators, physics professors, physics teachers and computer expert evaluators unanimously rated each CAI module as highly favorable; (2) No significant difference was observed between the physics knowledge gained and science process skills developed by the students who were under the CAI method and those in the traditional method; (3) Students under the CAI method developed a better concept mapping ability than those who were
exposed to the traditional method; (4) There was significant
difference between the attitude towards physics developed by
the students who were exposed to CAI method and those
exposed to the traditional method; (5) There was no significant
difference between the concept mapping ability, attitude
towards physics and physics performance of students when
grouped according to sex in the experimental group and control
group; (6) For the experimental group, physics achievement and
concept mapping ability were moderately correlated and for the
control group they were positively and significantly correlated.
The science process skills developed and the concept mapping
ability of the control group were highly correlated; (7) The
method of teaching and the average grade in science subjects
were the best predictors of concept mapping ability, while the
pretest score on the physics achievement test and the average
grade in mathematics subject were the best predictors of
physics achievement, while the pretest score on the science
process skills test and the average in science subjects for the
science process skills.

It is therefore concluded that the CAI method can be a good
substitute to the traditional method in imparting physics
knowledge and developing science process skills and favorable
attitude towards the subject. It is also a better method in
developing the concept mapping ability of learners.