

The Development of Computer-Assisted Instruction With Error Remediation Strategies For Teaching Electronics

Herman Dwi Surjono and Pramudi Utomo

The purpose of this research was to develop a CAI lesson with error remediation strategies, to evaluate the CAI lesson and to investigate if students using the CAI lesson had higher scores on posttest than those using other instructional media.

Firstly, the CAI lesson with error remediation strategies and a comparable CAI lesson without any strategies were designed and developed. Secondly, An experiment with nonrandomized control-group pretest-posttest design was conducted. The population of this research was the first year students of electrical department at vocational college of FPTK IKIP Yogyakarta. Three classes consisting of 16 students each were cluster-randomly sampled. Two experimental groups received the remediation and non-remediation CAI lesson and the control group received a written traditional instruction. Questionnaires and tests were used to gather data. The validity and reliability of the research instruments were established. Data were analyzed using descriptive statistics and analysis of variances.

The overall results of the research are summarized as follows: (a) the CAI lessons with error remediation strategies were designed and developed based on a tutorial method. The error remediation procedures were employed by presenting some additional explanations of the correct answer, (b) seventy-five percent to 94% of the students expressed that the CAI lesson concerning four aspects: subject matter, presentation, student interaction and program interaction was good, (c) the achievement of the students using the remediation CAI lesson was higher significantly ($\alpha=0.05$) than those of the students using the non-remediation CAI lesson, (d) the achievement of the students using the remediation CAI lesson was higher significantly ($\alpha=0.05$) than those of the students using the written traditional instruction. (**Keywords:** computer-assisted instruction (CAI), computer, error remediation strategies, electronics, tutorial, ABC systems)