DEVELOPMENT OF COMPUTER AIDED EXERCISE AND ASSESSMENT PACKAGE ON MEASURING USING PRECISION MECHANICAL MEASURING TOOL COMPETENCY STANDARD (CAEAP-MUPMMTCS)

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ABSTRACT

This research aimed to: (1) formulate the appropiate development processes of CAEAP-MUPMMTCS, (2) get a decent CAEAP-MUPMMTCS used in learning, (3) examine the effectiveness of CAEAP-MUPMMTCS in improving student learning outcomes.

This research is a research and development (R & D) carried out through several stages. The first stage was a preliminary study that included literature study, field surveys, identification of learning problems, creating media's goals identification, needs analysis, and planning the product design. The second stage was the production, which was make flowchart view, storyboards, material collecting, assembly, and modular testing, so we get the initial product. The product was then entered in the third stage of evaluation which includes the alpha test, beta test, and summative evaluation with pretest and posttest approach. After the analysis and revision, then the end product was entered in the fourth stage of dissemination.

The results of this research are: (1) the development of CAEAP-MUPMMTCS conducted through four stages, namely preliminary study, production, product evaluation, and dissemination, (2) CAEAP-MUPMMTCS fit for use in learning based on expert validation and the student's responses. Validation by matter experts obtain a mean score of 4.46 with the category of very good/A; validation by the evaluation expert obtain a mean score of 4.41 with the category of very good/A; and validation by media experts obtain a mean score of 4.55 with the category of very good/A. The mean score of student responses in the beta test is 4.06 with a category of good/B. While the average score of student responses in the summative evaluation is 4.00 with a category of good/B, (3) CAEAP-MUPMMTCS effective in improving student learning outcomes. This is evidenced by an increase in the average value of XMA class (experimental class) from the average value of 59.84 in pretest rose to 82.73 in the posttest. Exhaustiveness of XMA class also increased from 4 students (12.5%) to 30 students (93.75%). While the XMB class (control class) from the average value of 57.58 in pretest rose to 73.28 in the posttest. Exhaustiveness the students of XMB class increased from 5 students (15.625%) to 21 students (65.625%). The test results showed statistically that the mean score between the pretest of XMA and XMB was not significantly different, while the mean posttest value was significantly different.

Key words: development, package of exercise and assessment, computer aided, precision mechanical measuring tools