THE EFFECTIVENESS OF E LEARNING TO HELP TEACHERS IN CORRECTING STUDENTS ANSWERS ON MATHEMATICS PROBLEMS

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Abstract

Exercise questions for students aim to determine a student's level of understanding of the material. Students are said to understand if they can solve problems with the correct process and answers. Limited time and the number of students sometimes make the teacher unable to correct the answers from their students. Teachers only focus on explaining the material so that assistance is needed to be able to assist teachers in correcting student answers quickly and accurately. Therefore, the authors conducted a study entitled the effectiveness of e learning to assist teachers in correcting student answers to math problems.

The purpose of this study is to help teachers in correcting the correctness of student answers quickly, of course with the correct process. The expected outcome target is that teachers are able to use the SinauCBT E Learning application so that it can help speed up correcting student answers to math problems.

The application of SinauCBT has a positive and significant effect on students at SMPN 12 Surakarta 2020/2021 with a low correlation value of 0.395. The results of the F test in the third equation show that the F significance value is 0.003 <0.05. So that it can be concluded together will form a linear or significant equation model.

Keywords: CBT E Learning, ,Mathematic.

1. Introduction

Education is a process of learning knowledge, human skills that are passed down from one generation to the next, through teaching, training and research or also defined as a conscious which is carried out systematically in realizing a teaching-learning atmosphere so that students can develop their potential from which cannot yet be able to become possible. Meanwhile, the times have continued to develop with the globalization of education, technology, and others, thus spurring the government to implement ICT-based education starting from Elementary School to Senior High School level.

The rapid development of Science and Technology (IPTEK) has an impact on various areas of human life, including in the field of education. Many application programs have sprung up that are distributed via compact disk (CD) media or can be retrieved directly via the internet network. Most of the circulating application programs are distributed as shareware products, and some are given free of charge (freeware). Some of these application programs are also widely used in the field of learning, especially in making interactive multimedia.

The learning process is a communication process that involves several components, namely the message sender component, the message receiver component, and the message component itself. Therefore, teachers must be able to develop learning strategies by utilizing various media and learning resources to create good communication in the learning process

Media is very influential in the teaching and learning process, Zain (2006: 15) explains that the presence of the media has a significant meaning because in this activity the unclear material presented can be helped by presenting the media as an intermediary. The complexity of the material to be conveyed to students can be simplified with the help of the media. To make it easier for teachers to see the results of student tests, especially math questions, the teacher uses the digital question application media, namely SinauCBT.

Based on the explanation above, it is necessary to have a study to determine the effect of the SinauCBT application media on student understanding, especially math problems. It is hoped that the development of this digital application media will have a positive impact on students. Thus, the research proposal is put forward with

the following title: the effectiveness of e learning to assist teachers in correcting student answers to math problems.

2. Literature Review

Student learning achievement is determined by several factors, both internal and external factors. Internal factors are characterized by intellectual abilities, self-confidence, self-motivation, talents, interests, enthusiasm, scientific attitudes, and environmental care. Meanwhile, external factors include family background conditions, educational background, conditions of schools / institutions, infrastructure, learning environment, learning process involving teachers, and other student friends.

Based on the factors mentioned above, this study will examine the effect of the SinauCBT application media on students' understanding of math problems, especially students of SMP N 12 Surakarta, with a theoretical review as follows:

2.1. Aplication SinauCBT

Technological sophistication in all fields cannot be avoided, including in the field of education, from the learning process to the evaluation of assessments from elementary school to tertiary level. In response to and following technological advances and developments, conventional examination systems should switch to a computerized one.

The Computer Based Testing (CBT) system or the implementation of computer-assisted assessments is a derivative of the development of a computer-assisted instructional (CAI) system or computer-assisted learning that is specialized in the field of assessment, which includes question collections and automatic scoring processes, audio, video and interactive media and autorun

Menurut AJ Romiszowski (1988: 308) Computer Based Testing may (like CMI) be part of a CAI sistem, or may be a stand – alone facility. Some Computer Based Testing facilities are no more than an item bank, which can be used to generate two or more tests of equivalent content and difficulty, to be used at different moments in conventional classroom.

Lilley, et al (2005) dari University of Hertfordshire, School of Computer Science, United Kingdom (UK) dalam jurnal penelitian dengan judul Learners' Perceived Level of Difficulty of A Computer-Adaptive Test: A Case Study (2005)

concluded that CBT provides several advantages over the implementation of the test with the paper and pencil test model, including an automatic scoring system and reducing the burden on the respondent or test taker because it is younger to do the questions in the form of a computer based test than a paper-based test.

2.2. Score

The term value (Vulue) according to the poerwodarminto dictionary is defined as the price in estimation (for example the value of gold), the price of something (for example people), numbers (score), grade (quality), characteristics or things important to humanity.

According to Bambang Daroesa, value is a quality or appreciation for something, which is the basis for determining a person's behavior.

According to Darji Darmodiharjo Value is a quality or condition that is beneficial to humans both physically and mentally, so that value is a form of appreciation and a condition that is beneficial to humans as a determinant and reference in taking an action.

3. Research Methods

3.1. Place and time of research

This research will be conducted at SMP N 12 Surakarta. The research was carried out from March to June 2020 or one semester.
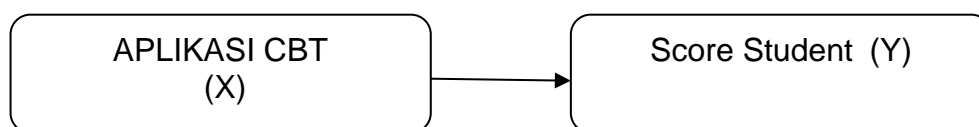
3.2. Types of Research

Based on the characteristics of the problem under study, this research can be classified into ex post facto research. Ex post facto research is a study where the independent variables have occurred when the researcher begins by observing the dependent variable in a study. Because this study seeks to find the contribution between the independent variable and the dependent variable, the type of ex post facto research used is ex post facto correlational research conducted through simple linear regression analysis.

This study aims to prove the positive effect of the Mathematics Subject Tryout with the help of the Sinau CBT Application Computer Based Test (CBT) on the Mathematics Subject Score of Students in Class IXA_B SMP 12 Surakarta.

3.3   Research Desain

The research design used an ex post facto correlational research design which was described as follows:

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┌─────────────────────┐          ┌─────────────────────┐
│     APLIKASI CBT     │   ───▶   │   Score Student  (Y) │
│         (X)          │          │                      │
└─────────────────────┘          └─────────────────────┘
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3.4   Research Variable

According to Suwarno (2005: 1-2), variables are observable characteristics of an object, which can provide various values or several categories. The variables in this study consisted of independent variables (independent), namely the dependent variable (dependent) CBT application, namely the value of mathematics subjects.

3.5   Data Collection

The questionnaire was compiled using a Likert scale, namely by using a range from very positive statements to very negative statements. The scoring for the questionnaire is used on a scale of 1 to 4. The questionnaire is filled out by experts in the family (class IXA_B students) in the CBT application.

4.   Result and Discussion

4.1. Research Result

Research on the effect of the SinauCBT application on class IX students of SMP 12 Surakarta using simple linear regression analysis. The discussion regarding the results of this data analysis consists of data descriptions, classical assumption tests and hypothesis testing.

Data description is a statistical tool that explains the characteristics of a data used for research which includes the mean, standard deviation, the lowest and highest total score of each of the variables in the study. The variable data description is shown in the following table.

Tabel 1. Mean dan Deviasi Standar Research Variable

Variabel Penelitian	Mean	STD	Min	Max
Aplication SinauCBT (X)	85,53	7,746	69	98
Result of the test score (Y)	75,47	15,744	35	98

Source: Data SPSS.

4.1.2 Hipotesis Test

a. Pre Requirement Analysis Test

1) Normalitity test

The data normality test based on Kolmogorof Smirnov can be seen in the table as follows.

Variabel Penelitian	Sig.
Aplication SinauCBT (X)	0,000
Result of the test score (Y)	0,098

Tabel 2. Uji Normalitas

Sumber: Data SPSS.

Based on the sig value. The SinauCBT application was 0.00 <0.05, so Ho was rejected so that the data on the results of using the SinauCBT application were not normally distributed. Repeat value has sig. 0.098> 0.05, then Ho is accepted so that the grade IX students of SMP 12 Surakarta are normally distributed. So, the dependent variable has been fulfilled, namely the Mathematics test score meets the requirements for a normal distribution and can be fulfilled for the next test.

2) Uji Homogenitas

Data normality test based on Lavene statistics can be seen in the table as follows.

Tabel 3. Homogeneity Test

Levene Statistic	df1	df2	Sig.
Result of the test score (Y)	10	37	0,318

Source: Data SPSS.

Based on the results of the homogeneity test, it was found that the significance value of the Mathematics Test was 0.318> 0.05, so it could

be concluded that Ho was accepted where the Deuteronomy value data was assumed to be variable.

3) Regresi Linier

The simple linear regression equation model obtained is $Yˆ = 6.879 + 0.802 X$, which can be explained as follows.

a. The constant is 6,879 if the ariable value of the SinauCBT application is 0, then the math test value is 6,879.

b. The regression coefficient of the SinauCBT Application ariable if the value has increased by 10, then the Tryout value has increased by 8.02. The positive coefficient means that the two variables have a positive relationship, the more you use the SinauCBT Application, the better or higher the Mathematics Test Score.

4.2 Disscussion of Research Result

After taking the data, the Sinau CBT application variable was obtained from the results of the value of the media making and the variable value for mathematics tests was obtained from the accumulated results of filling out the questionnaire. Then the calculation and analysis of the results show that there is an effect of the Sinau CBT application on the Mathematics test scores. Descriptively the two dependent variables, namely habituation in dealing with tend to be normal and homogeneous. This shows that using the SinauCBT application can help students improve student scores, with a sufficient average of 75.47. Based on the results of the effect test, it shows that the Sinau CBT application has a weak effect on the mathematics test score of 15.6%. This means that the variation of habituation in dealing with UNBK can only be explained by 15.6% through the linear relationship $Yˆ = 6.879 + 0.802X$. Therefore, to achieve a good Test Score the use of Sinau CBT has a significant effect.

5. **Conclusions and suggestions**

a. The Sinau CBT application has a positive and significant effect on the Try out Value in facing UNBK with a low correlation value of 0.395.

b. The results of the F test in the third equation show that the F significance value is 0.003 <0.05. So that it can be concluded together will form a linear or significant equation model.

c. The total R2 value is 0.156 indicating that the proportion of the effect of the Sinau CBT Application on the Try Out Value in facing UNBK is 15.6%. This means that the Sinau CBT application, the proportion of influence on the Try out score in the face of UNBK, is 15.6%, while the remaining 84.4% (100% - 15.6%) is influenced by other variables not in the linear regression model. The linear equation model obtained is $Y\hat{} = 6.879 + 0.802\ X$.

a. **Suggestion**

1. From the research results can be considered by the researcher to get used to Try out by using the CBT application.

2. the need for hardware and computer networks for the Tryout reading with the help of a computer.

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