

## THE INFLUENCE OF LEARNING CONTEXTUAL TEACHING AND LEARNING (CTL) MODEL RESULTS LEARNING INFORMATION TECHNOLOGY AND COMMUNICATION STUDENT CLASS XII SMA NEGERI 3 PADANG

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### ABSTRACT

*This study aims to determine the influence of Learning Contextual Teaching and Learning Model (CTL) on Learning Results Information and Communication Technology Students Class XII SMA Negeri 3 Padang. This research is a quantitative research with experimental research type. Sample data was collected by using random sampling technique. The sample of the study was 64 people with a population of 290 people. Instrument used in data collecting in the form of test result of learning, with type of choice of multiple (multiple choice item test), The selected become sample in this research that is student class XII IPA 2 as experiment class and XII IPA 3 as control class. Data analysis was done using Ms. Excell 2007. The data analysis technique used in this research is t-test, and based on t-test calculation shows t-count 5,393 and t-table 1.999 at 5% significance level which means tcount > ttable (5,393 > 1,999), H0 is rejected and H1 accepted . So it can be concluded that there is a positive and significant influence on the application of learning models Contextual Teaching and Learning (CTL) model of learning outcomes of information technology and communication students of class XII SMA Negeri 3 Padang. This can be seen from the average grade of the experimental class students (86,250) is much higher than the average grade of control class students (75,625).*

**Keywords :** *Learning Contextual Teaching and Learning Model (CTL), Learning Outcomes*

### 1. INTRODUCTION

The era of educational transformation is a flow of change where teachers and students will play an important role in learning activities. The role of teachers is not only as the transfer of knowledge or the teacher is the only source of learning (teacher center), but the teacher as an active mediator and facilitator to develop the student's active potential that is in him. Where the knowledge, independence and experience of teachers are integrated in creating effective and professional learning conditions to be more varied, meaningful and at the same time fun, for that teachers must see the potential that is in the student self.

An important problem in the world of education today is the lack of variations of learning motede as well as the integration of learning models in conducting learning activities is a necessity. Teachers need to follow the development of the times that as well as students need to learn in accordance with the times. Nowadays teachers need to be creative and innovative in developing the rules of integration with new learning model in accordance with the development of the times in carrying out

teaching and learning activities so that learning activities are more active, creative, innovative, and fun to create a good multiinteraksi between teachers with students, students with teachers, students with learning media and learning resources, as well as students with other students. Teachers should be able to familiarize students with pro-active, creative and innovative in learning activities, so that with a good learning process will be able to create quality achievement. Therefore, teachers as one important component of the success of learning, should be able to place itself as a figure that can generate students' ability to continue learning. Along with the development of the world of education is getting better, students today are required to always take part in the passage of time is getting the latest. Similarly, in terms of teacher competence, teachers should have adopted the framework of modern science in order to pursue equality with the development in the world of education.

Based on the problems described above, it takes action that can find a way out. One solution is the use of an appropriate learning model, a model that can make all students involved in the learning environment. The teaching model is one of the ways teachers use in teaching students. Therefore, the role of the learning model is an alternative that can be done by a teacher to answer from the learning problems and to further activate the learning in the classroom, it needs a learning system capable of developing students' ability as well as able to cultivate student's cognitive, Contextual Teaching and Learning (CTL) is one of the most appropriate alternatives to technological development. According to Sugianto (2008: 146) "Contextual Teaching and Learning (CTL) is a learning concept that encourages teachers to connect between the taught material and the situation real-world students ". And encourage students to make connections between their knowledge and application in their own lives as well as the knowledge and discipline of students derived from the student's efforts to construct his own new knowledge and skills when students learn.

Learning contextual teaching and learning models encourage students to make connections between their knowledge and application in daily life. Student knowledge and skills can be obtained from the student's effort to construct their own new knowledge and skills while learning so that students have flexible knowledge / skills can be applied (transferred) from one problem to another. The steps taken in the learning activities with Contextual Teaching and Learning (CTL) approach are as follows: (1) *Problem Based Learning*, which is a learning approach that connects the real world as a context for students to learn through thinking and problem solving. (2) *Authentic Instruction*, a teaching approach that allows students to learn meaningful contexts through the development of essential thinking and problem-solving skills in real-life contexts. (3) *Inquiry Based Learning*, a learning approach that takes the methodology of science and provides a means for meaningful learning. (4) *Project Based Learning*, a learning approach that allows students to learn independently to contribute their learning (new knowledge and skills), culminates in tangible form. (5) *Work Based Learning*, a learning approach that allows students to use the workplace context to learn the subject matter and reuse it at work. (6) *Service Learning*, a learning approach that presents a practical application of new knowledge and skills to meet community needs through projects / structured tasks and other activities. (7) *Cooperative Learning*, a learning approach that uses small groups of students to work together in ranagka to maximize learning conditions to achieve learning objectives.

## 2. RESEARCH METHODS

### a. Types of research

This research includes quantitative research methods. In general, quantitative research is more emphasis on the breadth of information, so this method is suitable for a wide population with limited variables (Sugiyono, 2014). Research method used is true experiment with Posttest-only Control Design research design. In this design the experimental group as well as the control group, after being given further treatment is given a test to measure learning outcomes. The true experimental study used all subjects in the intact group to be treated (treatment), using randomly selected subjects.

### b. Place and time of research

The research was carried out in SMA Negeri 3 Padang, located at Gajah Mada Gunung Pangilun, West Sumatra. The research period began on 18 November to 16 December in the odd semester of academic year 2014/2015.

### c. Population and Sample

According Sugiyono (2014) "population is the whole of the unit to be in carefully". Population taken in this research that is all student of ICT class XII SMA Negeri 3 Padang odd semester of academic year 2014/2015, which amounts to 290 students.

The sample is part of the number of subjects or objects and characteristics possessed by the population, which is the center or focus of observation in the study (Sugiyono, 2014). Sampling technique, this sampling technique to provide the same opportunity in each member of the population to be elected as members of the sample. In probability sampling technique, the sample chosen using simple random sampling technique. This sampling technique is a method of sampling from members of the population in a random manner without regard to strata (level) in members of a homogeneous population (similar).

### d. Research variable

The independent variable is the stimulating variable acting on the individual and the environment affecting the behavior. The independent variable in this research is Contextual Teaching and Learning (X) learning model. While the dependent variable is the response variable of the behavior of the organism in carefully, which has been stimulated. The dependent variable (Y) in this study is the result of learning of Information and Communication Technology of grade XII students.

### e. Data collection technique

Based on the source data collection techniques in this study using:

- 1) *Primary data* is data obtained directly from the respondents is by taking the value of previous ICT learning results in class XII SMA Negeri 3 Padang academic year 2013/2014.
- 2) *Secondary Data* is data that has been previously collected and reported by people or agencies outside of the researchers themselves, such as data on the number of students of class XII in SMA Negeri 3 Padang on ICT subjects. Secondary data collection is in the form of observation and documentation.

### 3. RESEARCH RESULTS AND DISCUSSION

#### a. Description of Research Results

This research is a quantitative research by using "*posttest-only control design*" experimental method, placing research subject into two classes, that is experiment class and control class. The experimental class is treated using Contextual Teaching and Learning (CTL) learning model while the control class uses conventional learning model.

#### b. Implementation of Learning

The experimental class learning schedule and control class can be seen in the following table:

**Table 1. Schedule of Implementation of Learning**

Activities	Class Control	Experiment Class	Material
Meeting I	18 Nov 2014 Hours to 5-6	19 Nov 2014 Hours to 5-6	Describe the applications used to create <i>vector</i> -based graphics and <i>bitmap</i> -based graphics and explain the advantages and disadvantages of <i>vector</i> -based graphics and <i>bitmap</i> -based graphics.
Meeting II	25 Nov 2014 Hours to 5-6	Nov 26, 2014 Hours 5-6	Describe the notions of menus and icons, show menus and icons, and discuss menu functions and icons
Meeting III	02 Dec 2014 Hours to 5-6	03 Dec 2014 Hours 5-6	Practice how to create shapes, practice how to give simple effects to graphics and practice saving documents
Meeting IV	Dec 09, 2014 Hours to 5-6	Dec 10, 2014 Hours 5-6	Apply simple and advanced effects on graphics Perform graphical printing and / or display ( <i>publish</i> ) graphics
Meeting V	17 Dec 2014	Dec 16, 2014	Test Results Learning

#### c. Analysis of Instrument Test Results Data

The instrument used in this research has been through several stages of testing, namely the test of validity, reliability, distinguishing power, and the level of difficulty. Before the questions were used in the study, the first question was tested to the non-sampled class XII students to find out the validity of the test of the research instrument. From 40 tested questions try to get 25 valid questions, by comparing the value of  $r_{pbi}$  and  $r_{tabel}$ . If  $r_{pbi} > r_{tabel}$  then the test item is declared valid. Furthermore, the whole item tested its reliability by using product moment test obtained  $r_{11} = 0.82$ , because  $r_{11} 0.82$  is in the range 0.80 to 1.00 then the overall test is stated to have a very high or very reliable reliable correlation. For the different power test of 25 valid questions there are 6 problems that the power difference is good and 20 problems the power difference is. So, there are 25 entries that meet the criteria of the good question. While the level of difficulty test of 25 valid questions there is 1 problem of moderate difficulty level, and 24 problems with easy difficulty level. Judging from the validity of the problem, reliability, level of difficulty and different power. So the decision questions used for the test results of learning is as much as 25 questions.

#### d. Description of Research Results

In summary, the students' learning achievement of the experimental class and the control class can be shown in the following table:

**Table 2. Statistical Value of Experiment Classroom Data and Control Class**

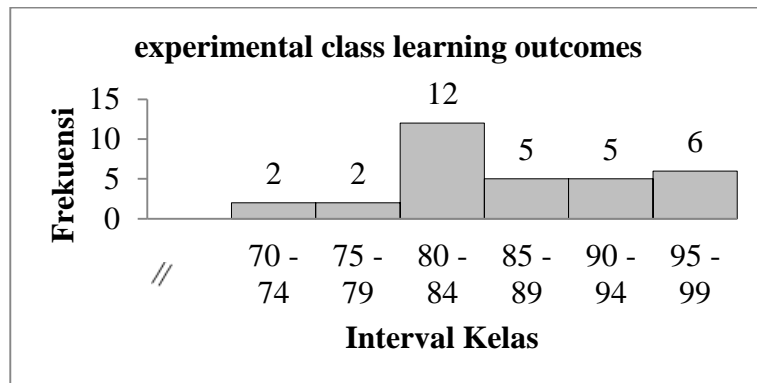
No	Statistics	Experiment Class	Control Class
1	N	32	32
2	Amount of Value	2760	2420
3	Mean (average)	86.250	75.625
4	Median	89.5	71.69
5	Mode	80	72
6	Maximum Value	100	92
7	Minimum Value	72	60
8	Range	28	32
9	Interval	6	6
10	Class Length Interval	5	6
11	Variance	68.064	57145
12	Standard Deviation	8,250	7.559

Based on the data compiled frequency distribution of experimental class learning results, presented in the table below:

**Table 3. Distribution of frequency of students' learning result of experimental class**

No	Experiment class				
	Score Interval	Central Value (x)	Frequency	Relative Frequency (%)	Cumulative Frequency (%)
1	70 - 74	72	2	6.25	6.25
2	75 - 79	77	2	9.25	12.5
3	80 - 84	82	12	37.5	50
4	85 - 89	87	5	15.625	65.625
5	90 - 94	92	5	15.625	81.25
6	95 - 99	97	6	18.75	100
<b>amount</b>			<b>32</b>	<b>100.00</b>	

The result of the analysis shows that the learning result of students who have the highest absolute frequency of learning is at the interval score of 12 in the interval range of classes 75 - 81 that is 37.5%. Based on the above table, can be drawn graph of frequency comparison of learning result of experiment class as follows:



**Figure 1. Histogram Frequency of Experiment Class Learning Outcomes**

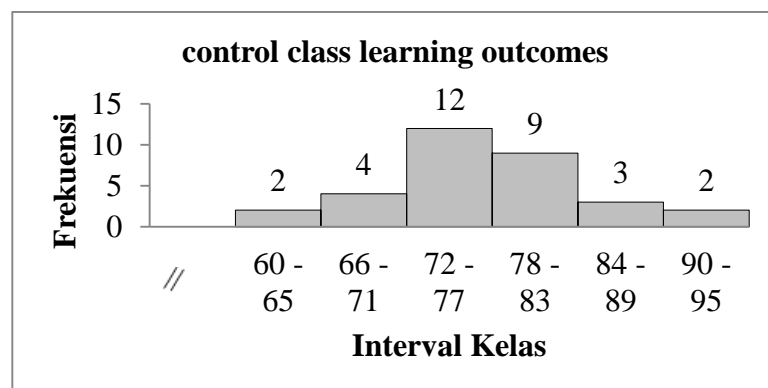
Based on the results of research data can be arranged frequency distribution of control class learning results are presented in the table below:

**Table 4. Frequency Distribution of Classroom Control Learning Outcomes**

No	Control Class				
	Score Interval	Central Value (x)	Frequency	Relative Frequency (%)	Cumulative Frequency (%)
1	60 - 65	62.5	2	6.25	6.25
2	66 - 71	68.5	4	12.5	18.75
3	72 - 77	74.5	12	37.5	56.25
4	78 - 83	80.5	9	28.125	84.375
5	84 - 89	86.5	3	9.375	93.75
6	90 - 95	92.5	2	6.25	100
amount			32	100.00	

The results of the analysis of table 12 shows that the learning outcomes of students who have the most frequent learning frequency is at interval score 12 in the interval range class 72 - 77 is 37.5% percentage.

Based on the above table, can be drawn graph of frequency comparison of learning result of control class as follows:



**Figure 2. Histogram Frequency of Classroom Learning Outcomes**

### a. Normality test

Normality test is used to find out whether the data is derived from the data distributed normal or not, so that can be used analysis by using *t-test*. The data used for this normality test is the final test score used in the control class and the experimental class. In the analysis of normality test this, the researchers used the normality test known as *Liliefors* test. Here are the results of normality test calculations on both samples:

**Table 5. Normality Test of Learning Results of Experiment Class and Control Class**

Class	n	$\alpha$	$L_{count} (L_o)$	$L_{table} (L_t)$	Conclusion
Experiment	32	0.05	-0.018	0.157	Normal Distributed Samples
Control	32	0.05	-0,031	0.157	Normal Distributed Samples

Based on the calculation of *Liliefors* test, the experimental class  $L_{counted}$  -0.018 is smaller than  $L_{table}$  0,157 for  $\alpha$  0,05, and control class  $L_{counted}$  -0,031 less than  $L_{table}$  0,157 for  $\alpha$  0,05. It is seen that the control class data and the experimental class are derived from normally distributed data.

### b. Homogeneity Test

The next analysis requirement is the homogeneity test of variance. The homogeneity test of variance is intended to find out whether the study sample came from a homogeneous population or not. Test of homogeneity of the two treatment groups performed using *F* statistic to calculate the ratio by dividing the greatest variance with the smallest variance. The criterion used is homogeneous group if  $F_{count}$  is smaller than  $F_{table}$ .

Summary of homogeneity test results are presented in the following table:

**Table 6. Homogeneity Test of Experiment Class Result and Control Class**

No	Class	N		$\alpha$			Conclusion
1	Experimen t	32	31	0.05	1,191	1.804	Homogeneous Variance
2	Control	32	31				

The calculation results show that in the treatment group is known variance ( $S_1^2$ ) largest is 68.065 and the smallest variance ( $S_2^2$ ) is 57.145. By distributing both figures, the index of homogeneity of variance between the two groups tested and the value of the numerator and denominator is 31.31. The value of  $F_{arithmetic}$  is 1,191 and  $F_{table}$  1,804. Thus  $F_{arithmetic} < F_{table}$ , which means it can be stated that the two tested groups are homogeneous.

### c. Hypothesis testing

Hypothesis testing was conducted on the learning result data which was tested using *two-tail test* by comparing the mean of difference of learning result value between the students taught by using *Contextual Teaching and Learning* (CTL) learning model and the students taught by the method of learning conventional. In summary the results of the hypothesis test results of the study are shown in the following table:

**Table 7. Hypothesis Test of Learning Results of Experiment Class and Control Class**

Class	N	X	S	dk	t <sub>h</sub>	t <sub>t</sub>	Conclusion
Experiment	32	86.250	8,250	62	5.393	1.999	H <sub>a</sub> Accepted
Control	32	75.625	7.559				

Test results at the level of significance  $\alpha$  0.05 (95% confidence level) and  $dk = n_1 + n_2 - 2 = 62$  with  $t_{count} = 5.393$  and  $t_{table} = 1.999$  so obtained  $t_{count} > t_{table}$  ( $5.393 > 1.999$ ). Thus H<sub>0</sub> rejected and H<sub>1</sub> accepted, which means that there is a significant difference between the learning outcomes of students who are given *Contextual Teaching and Learning* (CTL) learning model with student learning outcomes that use conventional learning methods on subjects Information Technology and Communication Students class XII SMA Negeri 3 Padang Semester Odd academic year 2014/2015.

#### 4. CONCLUSIONS

Based on the result of research, where in the experimental class that was taught by using Contextual Teaching and Learning (CTL) model, the mean is 86,250 while the students who are not given the teaching using the conventional model is 75,625 average. At test of normality of experiment class Lhitung -0,018 smaller than Ltabel 0,157 for  $\alpha$  0,05, and control class Lhitung -0,031 smaller than Ltabel 0,157 for  $\alpha$  0,05, then control class data and experiment class is normal distribution.

At test of normality of experiment class Lhitung -0,018 smaller than Ltabel 0,157 for  $\alpha$  0,05, and control class Lhitung -0,031 smaller than Ltabel 0,157 for  $\alpha$  0,05, then control class data and experiment class is normal distribution.

Furthermore, in testing the homogeneity of data from both groups obtained the result Fhitung <Ftabel, that is  $1.191 < 1.804$  then both groups have a homogeneous variance for  $\alpha$  0.05. Meanwhile, on hypothesis testing by using t-test obtained  $t_{count} > t_{table}$  for  $\alpha$  0,05 that is  $5,393 > 1,999$ . It can be concluded that there is a positive and significant influence on the application of learning model Contextual Teaching and Learning (CTL) to the learning outcomes of information technology and communication students of class XII SMA Negeri 3 Padang.

Where data analysis is done using Ms. Excell 2007. This proves that the learning model Contextual Teaching and Learning (CTL) was more influential on the learning outcomes of information and communication technology significantly compared with using conventional learning model.

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