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## The Influence of Tutorial-Based Learning Model on Information and Communication Technology (ICT) Subjects at Junior High School Painan

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#### Article Information

#### Abstract

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#### Keywords

Tutorial Based Learning, ICT, Junior High School This study aims to determine the effect of learning outcomes using a tutorial-based learning model in Information and Communication Technology (ICT) subjects at Junior High School 02 Painan. This study uses a quasi-experimental research method. The population in this study were students of class VIII Junior High School 02 Painan. The sample in this study used a random sampling technique with students in class VIII A as the experimental class and VIII B as the control class with 30 students in class A and 25 students in class B. The research instrument used was objective questions which were tested for validity, reliability, discriminatory power, and level of difficulty. Data were analyzed with parametric statistics including normality test, homogeneity test and hypothesis testing. As well as to test the activity and response of the research instrument used was a questionnaire which was validated by three lecturers who are experts in learning evaluation and the results of effectiveness were analyzed based on classical completeness and based on the Gain Score.

The results of this study revealed that student learning outcomes using the tutorial-based learning model with an average score of the experimental class was 78.933 better than ordinary learning with an average score of the control class was 69.76 in the final test analysis where the tcount was 9.484 and ttable is 1.68 with a significance level of 95% so that tcount > ttable and the research hypothesis is accepted. As well as seen from the activeness and response of students, the average result of activity is 80.9% with a very good classification and for the average student response result is 87.4% with a very good classification result. The effectiveness of learning using a tutorialbased learning model in the effectiveness trial, obtained 87% of students scored  $\geq$  70 which stated classically effectiveness and for the control class obtained 43.33% of students scored < 70 which stated that it was not classically effective. And in terms of Gain Score gets a value of 37.31% (medium). Thus it can be concluded that there is an influence of the tutorial-based learning model on Information and Communication Technology (ICT) learning on student learning outcomes.

### A. Introduction

Education is one of the factors that can help the progress of a country. Good education will produce quality human resources[1]. The higher the quality of education in a country, the higher the quality of human resources produced. In the implementation of learning it should be interactive, fun, motivate students to participate actively and provide sufficient space in developing abilities, creativity, interests and talents[2]. The use of Information and Communication Technology (ICT) in education improves the quality of learning and learning systems. The use of ICT has an impact on increasing the effectiveness and efficiency of learning.

Information and communication technology is one of the topics of study that plays a role in the development of superior human resources, starting from the junior high school level to tertiary institutions[3]. ICT guidance activities are an effective instrument for building reasoning, creativity, and innovation focused on science and technology expertise. Therefore, information and communication technology is one of the subjects that students must take in order to improve their abilities in science and technology[4].

Efforts to improve the quality of learning as evidenced by learning outcomes are still ongoing. However, getting the desired result is not as easy as one might expect. This can be seen from the low absorption of Junior High School 02 Painan students which can be seen in the observations made.

Analyzing the results of learning in semester 1 of class VIII Junior High School 02 Painan which is less than ideal in ICT material because the model used is not precise, so students are not active in learning. The goal of ICT Guidance learning is quality education to create graduates who are able to cover three elements of education, namely cognitive, emotional, and psychomotor, in order to participate in various educational innovations[5]. The technique used must be motivated, so that it becomes the driving force so that students are involved in learning activities to achieve certain goals[6]. The encouragement that exists in students must be stimulated by the teacher to want to achieve success in learning and always involve themselves in learning activities in order to achieve the desired results.

Learning that uses a scientific approach makes all students ready to think, so students who are less intelligent will experience many obstacles[7]. The large number of students is also a factor in the slowness of students in finding theories or solving problems, so that students are less motivated to take ICT Guidance lessons. Based on the findings of observations at Junior High School 02 Paina, learning outcomes were not optimal. The application of inefficient learning methods is one of the causes of low student learning outcomes in the field of information and communication technology. Therefore, a solution is needed so that learning is more effective.

There are several deficiencies in the ICT Guidance learning process at Junior High School 02 Painan which has an impact on student learning outcomes. These deficiencies are such as the ICT Guidance learning process which is only oriented towards mastery of the material and tends to be teacher-centered, the lack of courage of students to express opinions, the lack of enthusiasm of students in learning information and communication technology, and the lack of readiness of students to learn which results in students not being able to understand what is being taught in class[8]. This is due to the lack of student interest in the previous topic.

The low learning outcomes of ICT Guidance is a natural thing. The teacher is an active communicator, while students listen, discuss, receive assignments, and copy. Not infrequently the teacher will ask questions that will be responded to by students, then the teacher gives examples of questions followed by exercises that are routine in nature and do not train reasoning power. Learning activities like this result in the process of memorizing concepts or procedural processes, understanding information and communication technology concepts is low, unable to use them if given a rather complex problem, and students become robots who must follow applicable rules or procedures resulting in ineffective learning[9]. The fact shows that ICT Guidance lessons have their own difficulties faced by students. One of the facts found is that in Junior High School 02 Painan, especially in class VIII, students generally think that the ICT Guidance subject is a less preferred subject. The displeasure arises due to several factors such as students find it difficult to understand concepts and symbols, they even tend to forget to recall the symbols and functions that have been taught. Preliminary findings indicate that the ICT Guidance subject is still relatively low.

This learning paradigm is less focused in the process of exploring, understanding, finding, and applying information, causing students to become lazy and bored while studying[10]. As a result, ICT learning is misunderstood. The difficulties faced by students in learning such as understanding concepts in information and communication technology, especially in remembering the names of symbols and their uses. Teachers must know the strategies that will be used in helping students to overcome these challenges[11]. One of them is by paying attention to the teaching approach. Many instructors continue to use a teachercentred teaching approach, in which students are not given the opportunity to participate more actively and creatively in developing or finding their own opinions, resulting in learning objectives not being fully met. In this situation, it shows that a learning model is needed that can improve student learning outcomes by increasing student understanding, concepts, and communication[12]. Placing students in groups is a learning strategy that can improve student learning outcomes by helping them understand and communicate ICT Guidance topics. Students will find and understand complex topics more easily if they discuss them with their peers[13]. Cooperative learning is a teaching method in which students learn in small groups and help each other. Each group member works together to complete the task and help understand the subject matter.

The tutorial-based learning model is a learning model by means of its application by conveying lesson material that has been developed in the form of modules for students to study independently then students can consult problems and progress that are encountered periodically where the teacher or tutor provides assistance or study guidance related to teaching materials to students individually to help smooth the learning process, both individually and in groups[14].

In carrying out learning tasks, the teacher is not only obliged to present subject matter and evaluate student work, but is also responsible for implementing tutoring (tutorials). As a student learning guide, the teacher must take an approach not only through an instructional approach, but accompanied by a personal approach in every teaching and learning process that takes place[15]. Through a personal approach, the teacher will directly know and understand students in more depth so that they can obtain optimal learning results.

In the tutor learning method students are not only active in the learning process, but can also build an atmosphere of more intimate relationships between students who are assisted by the teacher or the tutor himself, this teaching activity is an opportunity for enrichment in learning and can also increase learning motivation and can improve sense of responsibility and self-confidence.

### B. Research Method

The type of research used in this research is quasi-experimental research. In accordance with the statement [16] that quasi-experimental research can be defined as a method that is carried out using a certain treatment. This study uses a tutorial-based learning model with conventional learning to see a comparison of the learning outcomes of class VIII students of Junior High School 02 Painan in the ICT Guidance subject. This research uses numerical research procedures and its analysis uses statistics, so that a quantitative method is used (Sugiyono, 2010).

The selection of the sample was carried out using a random sampling technique. In this study, two sample classes were used, namely the experimental class and the control class. In using random sampling techniques, researchers choose research subjects and research locations with the aim of studying or understanding the main issues to be studied. Random sampling is a sampling technique with the same performance with certain considerations (Sugiyono, 2010). The collection of samples by random sampling was carried out at Junior High School 02 Painan for class VIII outside the experimental and control classes. Furthermore, in this random sampling, sample similarities will be considered, namely having the number of class members and teachers in ICT subjects with relatively the same class average.

The sample of this research is class VIII students of Junior High School 02 Painan . For the experimental class is class VIII A, while the control class is VIII B. Data collection techniques use tests. Before the test questions were given, the questions were given outside the experimental and control classes, then analyzed with validity, reliability, level of difficulty, and power of difference with the formula (Sudijono Anas, 2012), then tested for normality, homogeneity and hypotheses. The activity and response data collection technique was carried out by giving questionnaires to students.

In this study, placing research subjects class VIII students of Junior High School 02 Painan into two class groups consisting of the experimental group and the control group. The research mechanism of the two classes is described in the following table:

Table 1. Research Design							
Group	Treatment	Posttest					
Group A	X1	Y1					
Group B	X2	Y2					
Source : Nana Sudjana (2004)							

Information :

- Class A : Experimental Group
- Class B : Control Group
- X1 : Tutorial Based Learning
- X2 : Non Tutorial Learning
- Y1 : Posttest Class Experiment
- Y2 : Posstest Control Class

### C. Result and Discussion

Based on the research that has been done, it was obtained that 40 items were tested in the form of objective questions with 25 students through several test questions. There were 25 valid questions for making the questionnaire validity instrument. The researcher validated three expert lecturers, the following table validated the results carried out by the validator:

Table 2. Results of Activeness Questionnaire Instrument Validation

No	Question	Valid	ators		C1	62	S3 55		$r_{r}$ n(c- $v$		Vot
NO	Question	Ι	II	III	31	32		Σs	1)	v	Ket
1	1	4	5	4	3	4	3	10	12	0.8333	Valid
2	2	5	5	5	4	4	4	12	12	1	Valid
3	3	5	5	5	4	4	4	12	12	1	Valid
4	4	5	5	4	4	4	3	11	12	0.9167	Valid
5	5	4	4	4	3	3	3	9	12	0.75	Valid
6	6	5	5	4	4	4	3	11	12	0.9167	Valid
7	7	4	4	5	3	3	4	10	12	0.8333	Valid
8	8	5	4	4	4	3	3	10	12	0.8333	Valid
9	9	5	5	5	4	4	4	12	12	1	Valid
10	10	5	5	4	4	4	3	11	12	0.9167	Valid
11	11	5	5	4	4	4	3	11	12	0.9167	Valid
	1-11	52	52	48	41	41	37	119	0.9	0152	Valid

 Table 3. Response Questionnaire Instrument Validation Results

No	Ouestion	Valid	ators		61	\$1 \$2		s1 s2 S3		1 c2 S3 TC		n(c-		Vot
NO	Question	Ι	II	III	51			<u>Σ</u> 2	1) V		Ket			
1	1	5	5	5	4	4	4	12	12	1	Valid			
2	2	5	5	5	4	4	4	12	12	1	Valid			
3	3	5	5	5	4	4	4	12	12	1	Valid			
4	4	4	5	4	3	4	3	10	12	0.8333	Valid			
5	5	5	4	5	4	3	4	11	12	0.9167	Valid			
6	6	5	5	5	4	4	4	12	12	1	Valid			
7	7	4	5	5	4	4	3	11	12	0.9167	Valid			
8	8	4	4	5	4	3	3	10	12	0.8333	Valid			
9	9	5	5	5	4	4	4	12	12	1	Valid			
10	10	5	5	5	4	4	4	12	12	1	Valid			
11	11	4	5	5	4	4	3	11	12	0.9167	Valid			
	1-11	54	53	51	43	42	40	125		0.94697	Valid			

From the results of the validation carried out, it was found that the results of the validation had several revisions. After the revision was carried out, it was found that the data analysis of the instrument validation test found that the average rating by the three instrument experts as a whole was 0.90152 in the "Valid" category. This means that the activeness questionnaire validation instrument made by the researcher is suitable for use in research. Student response questionnaires from the results of the analysis of the validation test of the instrument validity were known from the 13 statements, it was found that the average rating by the two instrument experts as a whole was 0.94697 and received the "Valid" category. This means that the validation instrument created by the researcher is suitable for use in research.

Group	Ν	$\overline{X}$	S	<b>S</b> <sup>2</sup>
Experiment	30	78.933	7.926	62.821
Control	25	69.76	6.935	48.094

Table 4.	Final	Test	Results	from	the	Samp	le C	lass
Table I.	1 mai	rest	Results	nom	unc	Jump		1455

Information :

N = Number of sample members

 $\overline{X}$  = Average value

S = Standard deviation

S<sup>2</sup> = Variance

Table 4 shows the results of students' ICT learning obtained from the final test (Posttest) on Microsoft Excel material. The learning outcomes test is in the form of a written test in an objective form of 25 items taken from 40 test items. In the experimental class, the final test was attended by 30 students, while the control class was attended by 25 students. Obtained an average score of standard deviation and variance of 62.82 for the experimental class, and for the control class found an average score of standard deviation and variance of 48.09. It can be seen that the learning outcomes of ICT Guidance in the experimental class using a tutorial-based learning model are higher than the learning outcomes of the control class.

Table 5. Data Normality Test Results

Group	Ν	@	Lo	Lt	Keterangan
Experiment	30	0,05	0,158	0,161	Normal
Control	25	0,05	0,127	0,173	Normal

Table 6. Data Hor	mogeneity Test Results
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Group	α	Fhitung	F <sub>tabel</sub>	Kesimpulan
Experiment	0.05	1 306	1 94	Homogen
Control	0,00	1000	1171	nomogen

Table	7.	Hypothe	sis To	est F	Results
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Group	t <sub>hitung</sub>	<b>t</b> <sub>tabel</sub>	Kesimpulan		
Experimen	0.406	1.60	Use othogic Accounted		
Control	9.486	1,08	Hypothesis Accepted		

Furthermore, in tables 5, 6 and 7, namely the results of the normality test, homogeneity test, and the hypothesis of the final test results in the two sample classes. The normality test was carried out using the lilliefors test. The results of the normality test in the experimental class obtained the results of data analysis L0 0.158 and Lt 0.161. For the control class, data analysis obtained L0 0.127 and Lt 0.173 stated that the data in both classes had L0 < Lt, meaning that the data was normally distributed. Furthermore, the data homogeneity test was carried out. The homogeneity test in detail can be found in the experimental and control classes Fcount 1.30 and Ftable 1.94. From the results of the homogeneity test it is known that the data obtained has a homogeneous variance. From the results of the normality test and homogeneity test, it is known that the data are normally distributed and have a homogeneous variance, so the T test is used to test the hypothesis. From the t test results, Tcount = 9.48 and Ttable = 1.68. (Thus Tcount) > (Ttable), accepted. It can be concluded that there are differences in ICT learning outcomes for students who are given tutorial-based learning methods with conventional learning models in class VIII Junior High School 02 Painan.

To test student activity in using the tutorial-based learning model, it was found that an analysis of 30 students found an average of 4.3 with a percentage of 86.03 with a very good classification. For the results of the student response test, an analysis of the responses of 30 students was obtained. It was found that the average result of the response questionnaire was 4.343, and the percentage of assessment was 86.871. The results of the classification show very good, so the use of a tutorial-based learning model at Painan 2 Public Middle School on activity indicators and student responses is very good. For more details can be seen in Figure 1.



Figure 1. Student Activities and Responses

The results of the comparison of the experimental values will become the basis for the level of effectiveness of the tutorial-based learning model. In determining the level of effectiveness of tutorial-based learning models, researchers analyze based on classical completeness. Based on the results of the analysis it is known that of the 25 students in the control class, 13 students got a complete score and 12 students did not complete, so that the percentage of completeness was 43.33% in the ineffective category. Whereas for the experimental class which was given treatment using a tutorial-based learning model, it was found that 4 students did not complete and 26 students who did, so that the percentage of completeness was 87% in the effective category. Based on classical mastery it can be concluded that the tutorial-based learning model is effectively used in ICT Guidance subjects. For Gain Score data analysis, it is known that student learning outcomes with an average N-Gain Score of 37.31% are in the medium category, so it is concluded that the tutorial-based learning model is effectively used in ICT Guidance subjects. From the two analyzes carried out based on classical completeness and Gain Score, it can be concluded that the tutorial-based learning model is effectively used is effectively used. For more details can be seen in Figure 2.



Figure 2. Results of Classical Analysis and Gain Score

# D. Conclusion

Based on the research that has been done, it can be concluded that learning ICT with a tutorial-based learning model is very effective in efforts to improve ICT Guidance learning outcomes in class VIII students of Junior High School 02 Painan. Judging from the tests that have been carried out using student activity tests in the use of tutorial-based learning models analyzed from 30 students produced an average of 4.3 with a percentage of 86.03 with a very good classification. For student response test results obtained by analysis of the responses of 30 students, obtained an average response questionnaire result of 4.343, and an assessment percentage of 86.871. So that the tutorial-based learning model in ICT subjects is very effective to use.

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