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## The Effect of Hybrid Learning Model on Learning Outcomes for Computer Aided Fashion Design Courses—2019

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**Abstract.** This Study aims to analyze differences in learning outcomes of cognitive, affective, and psychomotor domains of students using hybrid learning models compared to students who use direct learning models in computer aided fashion design courses. The method used in this study is the experimental method. The population in this study were all students majoring in S1 Fashion Education at Surabaya State University. The sample used in this study is the 2016 fashion education S1 students of class A as the experimental class and class B as the control. Data collection tools used are direct observation, documentation and tests with multiple choice questions. The analysis and hypothesis testing is done by independent sample t-test with the help of SPSS 21.0 for windows at a significant level of 0.05. The results of this study indicate that the cognitive and psychomotor learning outcomes of students using the hybrid learning model are significantly higher than students who use the direct learning model. Whereas, affective learning outcomes of students who use the hybrid learning model are significantly higher than students who use the direct learning model.

### 1. Introduction

In education, there is a teaching and learning process, which is the process of delivering messages or information from educators to students. The messages will transfer to the students if the students can understand the information. Therefore, it should have a device which supports the course of the learning process so that the learning objectives will achieve maximally.

Teaching material that requires a long time is a problem for lecturers who order all material should understand by the students. A short time factor or a factor that the researcher cannot predict, it can make the lecturer unable to convey all the material. Besides high-quality material, something of an interesting that can help lecturers in delivering material so that it can absorb or comprehend by students.

Based on the preliminary observations which had done by the researcher and the results of discussions with the lecturers of computer-aided fashion design, the learning process of computer-aided fashion design so far had less variety and the difficulty in creating new variations. The time limit of lecturers was one of the obstacles to developing the material which was easy to understand and attracts the students to study the material. The students tended to be bored, lazy, and they had slowed to absorb the material from learning resources in participating during classroom learning. The students who needed

to study but they were unable to attend due to the illness or when the lecturer was unable to attend. It would make the students miss material then they could not get the whole material.

Based on the existing problems, the researcher needed an alternative solution, namely the application of appropriate technology by incorporating internet technology into the learning through the right learning model. By utilizing information and communication technology, teachers could obtain the information which needed to support the learning activities. The application of information and communication technology had affected the development into the knowledge, skills, and logic of thinking and indirectly affected student learning outcomes [1]. The development of information technology had encouraged the emergence of various learning model innovations in the world of education.

The innovative learning model appears as alternative solutions to overcome the various obstacles in traditional methods. Hybrid learning was a combination of e-learning with face-to-face learning [2]. Besides to the hybrid learning, there is another term that is blended learning.

The integration of learning through information technology and communication with traditional methods had a positive impact on the achievement of learning outcomes [3]. The combination of online learning and traditional learning environments could be more useful in solving educational problems and fulfilling the educational needs also the application of blended learning strategies that allowed teachers/lecturers to develop ICT-based, active, creative, effective, fun including contextual learning [4]. Hybrid learning facilitates the students to get materials for learning activities through the internet. The lecturers also can monitor the student activities through the internet.

Computer-aided fashion design course is one of the courses in the Department of Fashion Education Engineering, Universitas Negeri Surabaya. In this course, the students are required to design and utilize the programs on the computer. The software which uses in this course is the Adobe Illustrator program. Therefore in this study discussed by using a hybrid learning model to learn student cognitive, affective and psychomotor learning outcomes..

## **2. Hybrid Learning**

The learning model that utilize as a form of learning strategy should refer to the approach of assigning the theoretical basis of learning.

### *2.1 Definition*

Hybrid learning has begun to be widely used and popular in the world of education and training in recent years. There are other terms of hybrid learning which is blended learning and mixed mode learning ([5], p. 12). The article contains the same meaning, which is the blending, mixing or combination in learning. The point is the blending and mixing of two learning approaches so that it can create a new learning pattern and will not cause boredom in students. Studying hybrid learning was the learning model which reduced face-to-face activity although it did not eliminate it. It enabled the students to study online ([5], p. 15).

The essential feature of hybrid learning such as it does not try to replace the lecturers, but it attempts to make learning more effective. Instead of eliminating the whole paradigm of teacher-centered, hybrid learning still opens space for essential lectures (face-to-face) in its traditional form. So that learning is a combination (combination) between face-to-face activities and online activities, which in the 2003 National Education System Law had referred as a dual mode [6]. Many dual-mode models had referred to as blended learning, multi-channel learning or multi-access learning, etc.

## 2.2 Application of Hybrid Learning

The phases of hybrid learning relate to the direct learning consists of the stages of planning, implementation, and assessment. The implementation stage consists of the introduction, core, and closing. The difference between direct learning and hybrid learning is in the primary phases/core learning. The differentiation is in direct education. The information has transferred by the teacher directly through face to face in class. In hybrid learning information had assigned directly to the teachers through face-to-face in class or through face-to-face information which had delivered directly through the information technology networks. Face-to-face using information technology can design via online or structural delay. According to Yulianti to get the learning results as our expectation, the hybrid learning needed to plan, implemented and evaluated [7] The activities that mentioned had presented in Figure 1 below.



**Figure 1.** The Learning Stages of Hybrid Learning

## 3. Computer Aided Fashion Design Model

According to Universitas Negeri Surabaya Faculty of Engineerings' guidebook (2016), computer-aided design course was the study and giving the understanding including mastery of design concepts. Then, it was using computers with Adobe Illustrator applications. This course had a score of 3 credits with a course code of 40324310. The terms for students to participate in Computer-aided design are they should taking courses in Basic Arts and Design and Applied Computer courses.

### 3.1. Definition of CAD

The CAD (Computer Aided Design) is a computer program that allows a designer (designer) to design the engineering images by transforming the geometric models quickly. The CAD (Computer Aided Design) in the fashion industry is Computer-aided fashion design or computer-aided design. Computer-aided fashion design use to make the models, fabrics, and colors at the same time before producing products. Computer-aided fashion designs use to make the woven fabric motifs, batik fabrics, design engineering, and the three dimensions designs. Using the computer-aided fashion design is useful for fashion designers, namely: (1) saving designer time during the design process to develop even the newer design ideas; (2) shows the components in each design; (3) allows fashion designers to see different designs, colors, and patterns on different models; (4) showing a prototype; and (5) make it easier for designers to changes before producing new designs.

### 3.2. Adobe Illustrator

Adobe Illustrator is a leading vector graphics editor program, developed and marketed by Adobe Systems. Adobe Illustrator is a vector processing application that is reliable in creating basic geometric shapes, such as points, lines, curves and polygons that design attractively. The central function of this application is as a vector processor but not only that, this application can also draw cartoons and also make effects for an image. The illustrator can use to sketch cartoons, effect, also forming an illustration or image in the form of 29 vector images, including making logos, animated characters, etc.

#### 4. Method

The approach of this study is a quantitative approach with the experimental research methods. Quantitative research or positivistic research is measurable, concrete research, the research data generated in the form of statistical figures [8]. The design of this study uses the Control-Group Pretest-Posttest design. The experimental group and the control group have the same characteristics because they are taken randomly from a homogeneous population as well. In this design, the two groups should give a pretest with the same test. Then, the experimental group should give special treatment namely learning using the hybrid learning model, while the control group should give treatment namely the direct learning model. After the treatment of the two groups was tested with the same test as the final test (posttest), the results of the second posttest were compared, as well as between the results of the pretest with the posttest in each group. The research design table Control-Pretest-Posttest design was as follow.

**Table 1. Desain Pretest – Posstest Control Group**

Group	Pretest	Treatment	Posttest
K. Experiment (R)	O <sub>1</sub>	x	O <sub>2</sub>
K. Control (R)	O <sub>3</sub>		O <sub>4</sub>

Explanation:

R : The experimental group and the control group of Undergraduate Fashion Education students have taken by simple random sampling.

O<sub>1</sub> and O<sub>3</sub> : The experimental and the control groups have given a pretest to know the student learning outcomes.

X : The treatment in the form of learning uses the hybrid learning model in the experimental group.

O<sub>2</sub> : The posttest in the experimental group after gives the learning uses the hybrid learning model.

O<sub>4</sub> : The posttest in the control group which give the usual learning uses the direct learning model.

The formulation of the problem and the theoretical basis has explained in the previous chapter, while the analysis of the data used an independent t-test. The calculation of the independent t-test in the study has used the SPSS 21.0 for Windows program. The basis of decision making has done in two ways, namely: Based on the comparison of  $t_{count}$  and  $t_{table}$  and based on the probability scores. The hypothesis in this study is the presence of the differences in the pretest score of Undergraduate Fashion Education students between the control class and the experimental class on computer-aided fashion design courses.

Also the differences in learning achievement between the students who have taught using the hybrid learning model that is the experimental class with the students who have taught without using the hybrid learning model that is the control class in the computer-aided fashion design courses. The data collection has collected using the data test techniques regarding the learning achievement in computer-aided fashion design of the experimental class and the control class from the average score of twice formative tests. The question types of formative inquiries are multiple choice questions.

## 5. Result and Analysis

After doing the learning process in each class, the students get the score of learning achievement. There is a description of the learning achievements of the experimental class and the control class. The utilizing of hybrid learning models in computer-aided fashion design courses and both show an increase between the average pretest results and the average posttest results. But in the experimental class which using the hybrid learning model, the average of the pretest results are 54.58 plus the posttests are 82.9. While in the control class which using the direct learning model, the pretest result has 54.08 and the posttest is 79. Therefore, the researcher can conclude the development of student learning achievement in the experimental class is higher than the control class. It shows us that when the learning process will be more effective and enjoyable when using the hybrid learning model rather than the conventional learning process without online learning. Because of the effectiveness of online training using the hybrid learning approach can help to focus on individuals and interaction with learning technology use the internet. The material has access using the internet makes it easy for students to study independently both on campus and at home. The students can repeat the learning more times. It is very suitable to use in computer-based learning processes which prioritize the practice compare to the theory.

### 5.1. Normality Test

The normality test uses to see whether the sample comes from a normal distribution population or not. The normality test of sample data in this study using Kolmogorov-Smirnov One-Sample (K-S Test) with SPSS 21.0 For Windows program and the results have obtained as follows.

**Table 2. Normality Pretest**

Question	Class	Asymp.Sig (2-tailed)	Condition	Inference
pretest	control	0,321	0,321>0,05	Normal
	experiment	0,557	0,557>0,05	Normal

**Table 3. Normality Posttest**

Question	Class	Asymp.Sig (2-tailed)	Condition	Inference
posttest	control	0,422	0,422>0,05	Normal
	experiment	0,552	0,552>0,05	Normal

In other words, the data distribution of all classes is normal.

### 5.2. Homogeneity Test

The sample homogeneity test aims to know whether the sample data from the population is homogeneous or not.

**Table 4. Homogeneity Pretest**

Question	Sig.	Condition	Inference
pretest	0,318	0,932>0,05	Homogeneous

**Tabel 5. Uji Homogenitas Posttest**

Question	Sig.	Condition	Inference
posttest	0,335	0,335>0,05	Homogeneous

In other words, the data distribution of all classes is homogeneous.

### 5.3. Hypothesis Test

The first hypothesis test discusses the learning model used between the two study groups. The learning class in the experimental class uses the hybrid learning model, while the control class uses the direct learning model. For the two-sided of criteria test decision, if the score of sig < 0.05, then H<sub>0</sub> has accepted

and  $H_a$  has rejected. So that there is no significant difference in the number of student pretest between the control class and the experimental class in the computer-aided fashion design course.

The second hypothesis test uses paired sample t-test. The score of sig (2-tailed) is 0.040. For the decision-making, two-sided criteria test if the score of sig  $< 0.05$ , then  $H_0$  has rejected and  $H_a$  has accepted. So that there have differences in computer-aided fashion design learning achievements between students who have taught using the hybrid learning models and the students who have taught without using a hybrid learning model. Meaningful results as supporting hypotheses are presented in Table 6 below.

**Table 6. Mean Learning Model**

Learning Model	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
MPL	80.971	0.996	78.981	82.961
MPL	77.883	1.084	75.719	80.048

Table 6 shows that the mean score of cognitive domain learning outcomes for students using hybrid learning models is 80.971, higher than the cognitive domain learning outcomes that use direct learning models that is 77.883. Thus it can be concluded that the cognitive learning outcomes of students who use the hybrid learning model are higher than students who use the direct learning model.

Based on the calculation of the first hypothesis and the second hypothesis the researcher can conclude that the utility of the significant hybrid learning model can improve the student learning achievement in Undergraduate Fashion Education. Student learning achievement has influenced by external and internal factors, wherein these external factors that affect the learning process are the imaginative learning models, one of it is the hybrid learning model. The utility of hybrid learning models can make the students understand the material better in the learning process. Because of the use of the hybrid learning model, the uploaded teaching material can download and play it back anywhere and anytime. Therefore, it can help the students understand the presented material also the student learning achievements in the subject of computer-aided fashion design are better. Whereas, the students who take part in learning without using the hybrid learning model, they are more passive in learning because the students only listen to their lecturers' explanations so that the students learning achievement is not optimal. The presence of differences in learning achievement causes of the activity during the learning that using the hybrid learning model. It has looked enthusiastic and active in following all interruptions of the researchers.

The initial activity in this learning the lecturer has delivered the learning material directly. Then in the next stage, the lecturer has provided the material through the internet or online which is accessible to students. Unlike the students who get the direct learning model, the lecturers extra explain about the teaching material directly. When the lecturers teach it, the students still confuse including the teaching material is unclear.

## 6. Conclusion

Based on the results of data analysis and the discussion of this study, the researcher concludes that: the utility of significant hybrid learning models will improve the learning achievement of Undergraduate Fashion Education students. Student learning achievement influence of the external and internal factors, wherein these external factors that affect the learning process are the imaginative learning models, one of it is the hybrid learning model. The utility of hybrid learning models can make the students understand the material better in the learning process. Because of the use of the hybrid learning model, the uploaded teaching material can download and play it back anywhere and anytime. Therefore, it can help the

students understand the presented material also the student learning achievements in the subject of computer-aided fashion design are better. Whereas, the students who take part in learning without using the hybrid learning model, they are more passive in learning because the students only listen to their lecturers' explanations so that the students learning achievement is not optimal.

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