THE IMPLEMENTATION OF THE ASSURE MODEL TO DEVELOP A LEARNING DESIGN FOR TECHNICAL DRAWING SKILLS AMONG VOCATIONAL STUDENTS

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KEYWORDS	ABSTRACT
ASSURE model, skills, technical drawing, vocational school	The purpose of this study is to describe the application of ASSURE model learning design in technical drawing skills subjects at Vocational Schools. With the development of information technology, teachers are expected to use relevant learning models in the learning process. This paper is also expected to help teacher to develop learning design, which effectively improves students' skills. Many teachers have difficulty determining learning models that can arouse curiosity, foster creativity, and hone qualified skills. A qualitative approach was taken to synthesize the findings, balanced with indirect interviews to see students' responses as real and genuine as possible. The data showed that the ASSURE model did not have a strong enough influence on lesson design. The results show that lesson design is not sufficiently assessed by the research period alone. This model is good enough to respond to students' skill needs according to the students' criteria. This model can be a reference in teaching technical drawing skills and other relevant materials in the future.

INTRODUCTION

The development of technology from time to time continues to experience a significant increase in terms of quantity and quality. These developments continue to change perspectives and even human lifestyles. Technological advancement shows the progress of human thinking. Innovation in learning does not go unnoticed. Learning innovation technology gives a new color to the classroom atmosphere in various conditions. Learning models that combine the two are increasingly being introduced with various advantages and disadvantages. (Yuniastuti et al., 2021). This provides a variety of options for teachers to bring subjects in the classroom.

Effective learning is increasingly becoming a challenge for many teachers. The word effective always emphasizes changes in the students' knowledge and skills. It is not easy to create meaningful learning. Students' characteristics in learning are very diverse, as well as their ability to digest knowledge. It is not easy to claim that a model is effective without a clear level of measurement. A model that uses simple rules in measuring is a model that is worth applying. This shows that the model can be used by various levels of teaching, whether it is a favorite school or not. One model that has this ability is the ASSURE Model (Tri, 2019).

According to Smaldino, Lowther and Russell (2011), the ASSURE model has been created and developed to help teachers design effective learning by integrating technology and media in classroom learning. In using this model a teacher should be able to analyse the students' characteristics first. Then state the standards and learning objectives. After that, they have to choose methods, media, and teaching materials that match the characteristics

that has been learnt and make changes to the material. There are at least 6 stages that must be done so that learning can run optimally.

The importance of an effective learning model is very much needed for teachers. To assess the effectiveness of learning, it can be assessed in terms of student learning outcomes and in terms of the learning process carried out in achieving learning objectives. (Khuluqo, 2017). This is why learning objectives must be clear at the beginning of learning. In general, learning can be said to be effective if 75 per cent or more of the total number of students have obtained a score equal to the minimum completeness criteria (KKM) or above. (Zain & Djamarah, 2013). Therefore, it is important to measure the learning process that has been carried out, so that teachers can find out the development of students and also the effectiveness of the learning model used.

Given the importance of measuring the learning process and the model used, this study aims to see the effectiveness of using the ASSURE model in learning technical drawing in vocational schools. The findings on the characteristics of students' skills in using this model are explained in more detail in the discussion of this article.

RESEARCH METHODS

This research is a quantitative approach, where the researcher applies the learning design using the ASSURE model to see how far it can improve skills in technical drawing subjects. This model was applied to two classes of vocational students at SMKN 2 Surakarta with 64 students as respondents. The application of the ASSURE model learning design can be done in several stages according to Table 1. To get the depth of data, observation, non-interactive interview, and python-based regression analysis were also conducted. In the final stage, the data was analyzed using qualitative methods by tabulating the data from the respondents. The results of the analysis are then interpreted in the discussion of this article.

Table 1. Stages of ASSURE model learning design implementation

ASSURE	Characteristics
A *Analyses the learners*	**General Characteristics:** 1. 64 male students, 2. 16-18 years old 3. Grade VII SMK, Semester 1 **Learning Style** 1. Visual, Kinesthetic **Mental State:** 1. The majority of ideal families 2. Entering SMK as the first choice, 3. *Middle high* cognitive ability **Behavior Understanding of the material** 1. Low curiosity 2. Behavior is difficult to control/free
S *state objectives*	A= Students of class X SMK Mechanical Engineering B= Working on the job- sheet on time and accordingly C= Students can design up to product analysis D= Students use drawing tools according to the standard
S *select instructional methods, media, and materials*	1. Learning Method = Demonstration and Discovery Learning 2. Learning Media = Machine drawing tools, PPT with projector, 3. Source of teaching materials = Machine Drawing Book (Masato, K. 1995)
U *Utilize media and materials*	**5P approach:** P1= Define learning content in the form of drawing basics such as: numbers and letters, lines, geometry, and drawing standards. P2= Make an overview of the TTG machine as an initial preview P3= Setting up an air-conditioned drawing room with a well-equipped drawing table P4= Ensure students understand the regulation and learning preferences before it starts P5= Demonstrate pictures, and provide many jobs to give proper experience.

ASSURE	Characteristics
R require learner participation	**Stages of learning:** 1. Students enter the classroom and choose one person one drawing table 2. The teacher makes sure the drawing paper and drawing tools are well available 3. The teacher assigns a drawing job according to the day of the meeting 4. The teacher demonstrates for 20-30 minutes about the drawing job that will be made. 5. Students perform the drawing according to the demonstration within the specified time frame. 6. The teacher monitors during the task 7. The teacher gives an evaluation 15 minutes before the drawing time is over 8. The teacher accepts all students' drawings at the end of the time without any extension.
E evaluate and revise	**The evaluation steps are as follows:** 1. Ask for feedback on difficulties and obstacles during the learning process 2. Creating affective self-assessment rubrics for students 3. Evaluate the media used, whether it is effective enough 4. Make a self-evaluation

Table 2. ASSURE model learning instrument

NO	STATEMENT	STS	TS	N	S	SS
1	I enjoy learning technical drawing subjects					
2	I feel enthusiastic about learning technical drawing subjects					
3	I pay good attention when the lecturer explains the technical drawing subject					
4	I try to collect assignments with technical drawing subjects well					
5	I recommend Electrical Engineering Drawing as my course preference.					
6	I feel motivated to explore technical drawing subjects					
7	I made a technical drawing subject report					
8	I do well on technical drawing assignments on topics that I don't understand.					
9	I follow the technical drawing course well					
10	I am polite and friendly during technical drawing lessons.					
VALUE						
TOTAL VALUE						
CATEGORIES						

Data scale: STS = 1; TS = 2; N = 3; S = 4; SS = 5

RESULTS AND DISCUSSION

The application of learning design using ASSURE model has been implemented in technical drawing subject for class VII students at SMKN 2 Surakarta. Observations were made on all students in several categories. The first category is by making indirect observations in conventional classes or using direct learning methods. In general, there is no significant interaction between teachers and students, this is marked by the teacher as the centre of learning. Learning tends to be monotonous and teacher-centered. There were not many students who gave responses. The second category by giving treatment in the form of learning design with ASSURE method. Based on observation, there is a difference in students' curiosity about the material taught.

Based on the instrument that has been distributed, student response data is obtained which is then averaged into regression analysis input data. Regression analysis is carried out using python-based machine learning through the Jupiter notebook channel. This application is an open-source web-based medium that allows you to create and share documents containing live code, equations, visualizations, and narrative text. It is useful for a

variety of tasks, such as data cleaning and transformation, numerical simulation, statistical modelling, data visualization, and machine learning. Stands for the three programming languages Julia (Ju), Python (Py), and R. These three programming languages are essential for a data scientist.

Table 3. Regression Analysis Results

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==============================================================================
Dep. Variable:        LikertResponses   R-squared:                       0.001
Model:                           OLS    Adj. R-squared:                 -0.015
Method:                Least Squares    F-statistic:                   0.05024
Date:               Wed, 20 Dec 2023    Prob (F-statistic):              0.823
Time:                       13:26:42    Log-Likelihood:                -41.302
No. Observations:                 64    AIC:                             86.60
Df Residuals:                     62    BIC:                             90.92
Df Model:                          1
Covariance Type:             nonrobust
==============================================================================
                       coef    std err          t      P>|t|      [0.025      0.975]
------------------------------------------------------------------------------
const                3.8182      0.119     32.202      0.000       3.581       4.055
IndependentVariable  0.0007      0.003      0.224      0.823      -0.006       0.007
==============================================================================
Omnibus:                       3.921   Durbin-Watson:                   2.165
Prob(Omnibus):                 0.141   Jarque-Bera (JB):                3.033
Skew:                         -0.492   Prob(JB):                        0.219
Kurtosis:                      3.413   Cond. No.                        75.7
==============================================================================
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Respondent	Mean Squared Error	R-squared
64	0.21284410006016144	0.0008096027682819029

The regression test is used to determine whether there is an influence between the ASSURE Model and the improvement of student skills in Technical Drawing subjects. The magnitude of the influence or ability of the predictor variables simultaneously in explaining the response variable. If the value is more than 0.5, the ability of the predictor variable is strong in explaining the response variable. On the other hand, if the value is less than 0.5, the ability of the predictor variable is not strong in explaining the response variable. In this panel data regression example, the R-Square value is 0.001, which means that the predictor variable is not strong in explaining the response variable. In Figure 1 it is also explained in detail, that the student response values tend to be dispersed in various directions, this indicates that the proposed model is not strong.
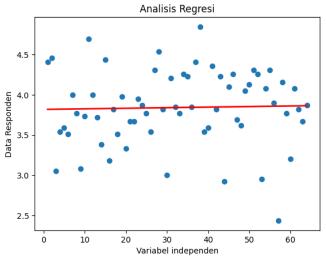

Figure 1: Regression Analysis Chart

Based on the regression analysis conducted, it shows that the use of ASSURE model in designing learning to replace direct learning method is still not good enough. To find out more, indirect interviews were conducted after the implementation of the learning design. In this design, to fulfil the state objectives, the Demonstration and

Discovery Learning methods were selected. Students explained that the teacher had taught well where students were asked to be actively involved in discovering and understanding new concepts or knowledge through their own exploration, experimentation and reflection. Students also claimed to have been given enough opportunities to experience and explore learning materials independently or in groups, without direct direction from the teacher. This fulfils the criteria of demonstration and discovery learning. Students responded that this learning is more about technical skills and speed, while the time needed tends to be short. Therefore, students do not have enough time to do the drawing practice well. Opportunities for mentoring or consultation with teachers are also lacking, due to the specifications of the modules that require time and experience. An effective and efficient learning process can be created through the design of learning programmers made by teachers with high innovation and creativity. (Iskandar & Farida, 2020).

The importance of innovation and initiative is another important factor that cannot be ignored. (Dedi, 2018). Based on this statement, it shows that the methods provided have met the criteria, but in terms of the time approach and the opportunity to consult cases directly with the teacher which is short, the learning is considered less effective. However, students indicated that the use of demonstration and Discovery Learning methods tended to be more desirable than direct learning. Therefore, time is important in determining whether the research is worthy of evaluation or still needs to complete the programmed material. Learning that leads to the ability to think critically (Sari & Susiloningsih, 2015) with this model, is also worth developing. This finding provides a new perspective that the development of learning design must ensure adequate time for respondents.

CONCLUSION

The application of the ASSURE model in designing technical drawing skills learning has been carried out in vocational schools. Based on the available data, it can be seen that the ASSURE model contributes insufficiently to the development of students' skills. This is shown by the regression data result of 0.001 < 0.5. However, the interview data shows that the designed method is very good and provides another point of view for students. In learning technical drawing skills, the time aspect is an important factor determining the success of the program. This model provides detailed stages in helping teachers to design learning to relevant evaluation used. The results of this study can be a reference for future teachers to be able to correlate existing subjects using the ASSURE Model, in order to significantly develop students' skills. This model also still has various gaps, so that it can be developed in the future

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