

# Analysis of Learning Model and Learning Understanding of High School Students in Craft Subject Using an Online Learning System

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**Abstract**—The corona virus pandemic has changed the way students learn from physical to online learning. The learning model used will affect how the students understand, especially on subjects that require direct practice such as craft subject. This study aims to explore the learning model used in the online learning system and find out how students understand the material provided. Data collection was carried out on a teacher and 28 students who took these subject at Nurul Fikri Islamic Boarding Senior High School in Cinangka, West Java. This research was conducted using a qualitative method through data collection, data presentation, and conclusion and verification stages. Data were collected through observation, interviews and documentation. The results indicate that the Project Based Learning model used can support the online learning on the Craft Subject. In addition to using the Google Classroom application, teacher also makes video tutorials so that students can carry out the project assignments. In the aspect of understanding learning, the majority of students can understand the material and do project assignments well. Students can actively discuss in class and ask the teacher if they do not understand. All students score above the Minimum Completeness Criteria for this subject.

**Keyword**—learning model, online learning system, student learning understanding, project based learning

## I. INTRODUCTION

The corona virus pandemic (COVID-19) is currently sweeping the world, including Indonesia. The impact of this pandemic requires that almost all activities be carried out from home, including teaching and learning. The government through the minister of education and culture, Nadiem Makarim, requires all schools and universities in Indonesia to carry out online learning until the COVID-19 pandemic can be overcome [1].

The results of a survey conducted by Budi Mulyanti et al. [2], regarding Distance Learning in Vocational High Schools during the COVID-19 Pandemic in West Java Province, Indonesia, revealed that students generally consider online

learning no more interesting than ordinary learning, even though most of them can understand the material provided and have the opportunity to participate actively during the learning process. On the other hands, it is feared that the lack of direct student experience in online learning will have an impact on not achieving the learning process for complex and deep material optimally [3]. Therefore, an online learning model that can support learning that requires hands-on practice such as crafts subject, is needed. In the research conducted by Anne Uukivvi and Oksana Labanova on E-Learning Materials, Methods and Tools to Activate Students, it was found that students appreciated short video tutorials as learning materials and as a method for giving and receiving individual feedback. They like practical assignments and games, especially when it comes to their specialization. Immediate feedback was also important for students [4].

Based on an interview with a Craft Subject teacher at the Nurul Fikri Islamic Boarding Senior High School Cinangka, it was known that online learning at this high school has been implemented since the beginning of online learning regulations by the government. In this study, an analysis was carried out to explore the learning models used and students' understanding of learning during the online learning. It was also analysed how the learning model used can support students' understanding of subjects that require direct practice such as craft subjects.

## II. METHODS

### A. Research Method

This research was conducted using a qualitative approach. Data was collected through (1) observation during learning takes place, (2) teacher and student interviews and (3) related documents analysis. Data analysis was carried out using an interactive model of Miles and Huberman, through stages (1) data collection, (2) data reduction, (3) data presentation, and (4) conclusion [5].

**B. Research Procedure**

This research was conducted for 6 weeks during the online learning process, starting from March 16 to April 20, 2020. Participants in this study were a teacher who taught craft subjects and 28 grade X students at Nurul Fikri Islamic Boarding Senior High School in Cinangka, West Java. In the first week to the last week, we conducted observations on teacher and students, by directly following the learning process in online classes. Observations on the teacher were aimed to explore the learning model used, while on the students were to trace their responses in understanding the material being taught. In the last week, teachers and students were interviewed about aspects that were relevant to the observation results. For some students, a follow-up interviews were conducted to dig deeper information. Furthermore, we carried out documents study in the form of a learning implementation plan (RPP), instructional videos, student attendance recaps during online learning and student assignment scores.

Furthermore, the data credibility test was carried out using triangulation techniques [6]. In this case, the learning model used and students' understanding of learning in online learning were analysed using three data sources, namely observation, interviews and document study. The triangulation technique can be seen in Figure 1.

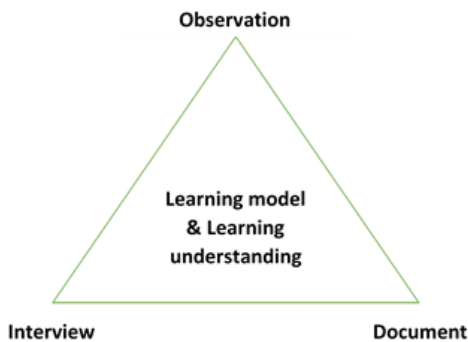


Fig. 1. Data credibility test.

**III. RESULTS AND DISCUSSION**

**A. Learning Model**

Based on the observations results to the teacher, it can be seen that learning process was carried out entirely using the internet by applying the project-based learning (PjBL) learning model. PjBL is a model that organizes learning around projects [7]. This learning model really supported the delivery of craft subjects by the teacher. The material was delivered in the form of instructional videos made by the teacher and uploaded to YouTube, so that students can access it via the link provided by the teacher. The video contains how to make a simple game using the kodu game lab application as shown in Figure 2. The online learning process is carried out using the Google classroom application. Projects that will be assigned to students, designed and tested by the teacher first. The learning model used can encourage students to be actively involved in

learning and allow students to discuss with each other. While the teacher explained about the game project assignments, students can ask questions and comments through the google classroom discussion forum.



Fig. 2. Instructional video on YouTube.

The results of observations made on students indicate that all students can understand the material being taught. The majority of students can easily complete assignments by following the guides in the interactive and user-friendly instructional videos.

Furthermore, to find out more about the learning model used, we conducted interviews with handcraft subject teacher. The informant explained that the Project Based Learning model was implemented by assigning a game creation project task. Learning took place completely online, including instructional video tutorials. About 80% Of the 28 students can participate in learning well, which means the learning model can support the delivery of craft subjects. The delivery of the material was in accordance with the learning model used, and at the end of the material, students were given the task of making simple game projects. The learning model used encourages students to be actively involved in learning because students were required to be creative. Students were encouraged to actively discuss and submit suggestions about the projects they were working on.

Furthermore, based on the results of in-depth interviews with students, the form of assignments was given through essays for theory and projects for practice. The majority of students thought that the assignment given was in accordance with the material being studied and was easy to do because it was equipped with a video tutorial. However, students had difficulty when asked to make games that were designed by themselves. When online learning took place, students generally can focus because there was a comfortable place and atmosphere at home. Meanwhile, students who did not focus on participating in online learning were triggered by an uncomfortable atmosphere at home and their attention is diverted to other things such as social media. Some students were actively involved in learning because they wanted to understand the material taught by the teacher well. However, some students were not actively involved in learning because they focused on other things or the internet network at home was unstable. When working on assignments, students

generally actively discussed, because they thought the assignment would be easier if done together. Some students were not actively discussing because they found it difficult to have online discussions, especially not supported by a stable internet network.

The next step is to analyse the RPP document. In the RPP document, it is stated that students are given material about making simple games using kodu game lab software on a computer or laptop. This has been implemented through instructional videos given by the teacher to students. How to make a game using the kodu game lab has been explained in detail so that students understand and do their project assignments well.

### *B. Student Learning Understanding*

Based on observations of teachers to trace students' understanding of learning when participating in online learning, it appears that the teacher was always ready to help when there were students who have problems understanding learning material and when doing assignments. Students were encouraged to ask any questions via google classroom or WhatsApp messages. The teacher also monitored students while working on project assignments and evaluated the results of student assignments to provide immediate feedback.

Furthermore, based on observations of 28 students, it seems that the majority can understand the material presented by the teacher. There is one student who cannot understand the material being taught because he feels uncomfortable doing online learning, where the learning atmosphere is different from being in a live class. It can also be seen that the majority of students can do project assignments well. When learning online, most students experience problems with their internet connection. Usually if there are problems, students try to change the internet network to a more stable one. When having problems doing assignments, the majority of students ask their friends and teachers. After the assignment is complete, students generally evaluate the results of their assignments, according to feedback from the teacher.

Next step, interviews were conducted with teachers to explore students' understanding from the teacher's point of view. Basically the teacher always did their best so that all students can easily understand the subject matter. Teacher always designed and tested assignments that will be given to students, to determine the level of difficulty. The teacher also monitored the progress of the assignment every week and asked students to send proof of projects that were being worked on. Teacher provided opportunities for students to ask questions at any time, either through forums on Google classroom or chat on WhatsApp. The teacher provided an alternative learning resource that is right for students who experience problems while doing assignments. The teacher also evaluated the results of the assignment to assess students' mastery of the subject matter.

Furthermore, in-depth interviews with students were conducted to explore their learning understanding during online

learning. Through this interview, students conveyed that the material provided was easy to understand because it was given in the form of an interesting learning video. However, some students argued that the material presented online was more difficult to understand, in contrast to direct classroom learning. Generally, students can do the assignment well because there were many references provided by the teacher in addition to the learning videos. However, there were also students who did not do their assignments well, because they lacked focus and were distracted by other activities. The majority of students experienced poor or unstable internet connections. In order to keep up with the lessons, they usually changed the internet network to a more stable one. If there were obstacles while doing assignments, students generally asked the teacher or other students for help. But there were also students who choose to solve their own problems by looking for them on the google search engine. The majority of students evaluated the results of their own assignments to determine whether there were any mistakes on their assignments.

As the final stage, the data of the student attendance recap and the results of student assignments was analysed. From the attendance documents for 6 meetings, almost all students attended each meeting. Some were absent due to illness, but there were no students who did not attend without reason. Furthermore, the results of student assignments, in the recap of assignment scores given by the teacher, can be seen that the average score of student assignments was above the minimum completeness criteria (KKM). This shows that students can understand the material presented by the teacher and can do the assignments well.

## IV. CONCLUSION

Based on the results of the study, it can be concluded that the learning model used was Project Based Learning by assigning project tasks to make simple games. This learning model can encourage students to be active during learning and be able to do assignments well. This learning model can support the delivery of craft subjects on online learning.

From the aspect of student learning understanding, most students can understand the material presented in online learning well. Students can actively discuss during the learning process and can do assignments well. The average student score was already above the minimum completeness criteria (KKM).

## REFERENCES

- [1] Surat Edaran Mendikbud No 4 Tahun 2020 Tentang Pelaksanaan Kebijakan Pendidikan Dalam Masa Darurat Penyebaran Corona Virus Disease (COVID- 1 9), 2020. [Online] Retrieved from: <http://www.datadikdasmen.com/2020/03/semendikbud-no-4-tahun-2020.html>. Retrieved on August 30, 2020.
- [2] B. Mulyanti, W. Purnama, and R.E. Pawinanto. "Distance learning in vocational high schools during the covid-19 pandemic in West Java province, Indonesia." *Indonesian Journal of Science and Technology* vol.5, no. 2, May 2020.

- [3] T. Anderson and F. Elloumi, Theory and practice of online learning. Athabasca University; 2004. Colin Tattersall and Rob Koper: EML and IMS Learning Design: from LO to LA, 2004.
- [4] A. Uukkivi and O. Labanova, "E-learning materials, methods and tools to activate students," In New learning scenarios in digitalized world: international workshop, pp. 31-39, 2017.
- [5] M.B. Miles, A.M. Huberman, and J. Saldaña, Qualitative data analysis: a methods sourcebook, Third edition. Thousand Oaks, California: SAGE Publications, Inc, 2014.
- [6] Triangulation, Data Source. "The use of triangulation in qualitative research." In Oncology nursing forum, vol. 41, no. 5, p. 545. 2014.
- [7] J.W. Thomas, A Review of Research on Project-Based Learning. California: The Autodesk Foundation, 2000.