

# Online Observation Protocol to Supervise Online Learning and Its Sample Report

1<sup>st</sup> Ence Surahman\*  
*Dept. of Educational Technology*  
 State University of Malang  
*Ph.D. Student at National Tsing*  
*Hua University, Hsinchu Taiwan*  
 Malang, Indonesia  
 ence.surahman.fip@um.ac.id

2<sup>nd</sup> Sulthoni  
*Dept. of Educational Technology*  
 State University of Malang  
 Malang, Indonesia  
 sulthoni.fip@um.ac.id

3<sup>rd</sup> Ujang Nendra Pratama  
*Dept. of Performing Arts*  
*Education*  
*Institut Seni Indonesia Yogyakarta*  
 Yogyakarta, Indonesia  
 ujang.pratama@isi.ac.id

**Abstract**—The implementation of online learning requires online supervision and research to maintain the quality of the learning process. However, research on online learning observation protocols has not been widely reported. This study aimed to propose an online learning observation protocol that teachers, educational supervisors, and researchers can use. The research used a mixed-method with the AID model to design online observation protocols then tested it in online learning videos for 45 minutes. Technically, the research started from a review study of online observations, then the protocol's design and the determination of the core components that need to be observed. The protocol design is used to observe videos of online learning activities available on the Youtube platform. The research result is an online learning observation protocol that is easy to follow and can adopt by researchers, teachers, principals, or quality assurance of learning at all levels of education. Thus, we hope that the quality of learning remains controlled even though the learning process is carried out online.

**Keywords**— *online observation protocol, online learning, quality assurance*

## I. INTRODUCTION

Since the implementation of the online learning policy due to the Covid-19 Pandemic, all learning activities carried out face-to-face have been turned into online or distance learning activities using various methods, models, and supporting tools. Changes in teacher teaching habits, students learn from face-to-face to online learning leaves deep questions. How is the effectiveness and quality of online learning done so far? Has the teacher been able to help students achieve all learning objectives? Does the online learning process follow the quality standards of the learning process as usual? To answer this question, the researchers attempted to measure the effectiveness of online learning. One of the most widely used methods to measure learning effectiveness is observation, interviews, and documentation studies [1]; even

observation can improve the quality of learning and science learning [2]. However, research on online observations, interviews, and online documentation studies has not been widely reported. So this research seeks to bridge these problems and needs.

The online observation was carried out on teachers and students who are doing remote learning. Synchronously/ asynchronously on various platforms such as Google Meet, Zoom, LMS, Google Classroom, Ms. Teams, WA groups, Telegram Group, and others [3], [4]. Observation protocol used for undergraduate engineering students to measure resistance to active learning[5]. The study reports on efforts to minimize student resistance behavior in the active learning process designed by the instructor among engineering students. They do engineering learning to reduce the level of student resistance during the learning process. In the context of classroom learning, the observation protocol is adopted in STEM and mathematics lessons [6]–[8].

Several studies on learning observation guides mainly were conducted face-to-face. The use of the Reformed Teaching Observation Protocol (RTOP) was developed by the Evaluation Facility Group (EFG) of the Arizona Collaborative of Excellence in the Preparation of Teacher (ACEPT). RTOP is used to reform the quality of education to be designed according to specific quality standards [9]. Another study reported the Teaching Dimensions Observation Protocol (TDOP). TDOP serves as a guide in order to capture the nuances of the learning process. TDOP was developed as part of the Culture, Cognition, and Evaluation of STEM Higher Education Reform (CCHER) study in 2008-2012 [10]. This TDOP includes teacher methods, pedagogical moves, student-teacher interaction, cognitive demand, student engagement, and technology.

Based on the importance of the online observation protocol document, this study aims to develop and test

the results of the online observation protocol that has been designed. Thus the research questions include (1). What can online observation protocol be used to observe the online learning process, either directly or from the learning video documentation? (2). What is an example of a report on the results of online observation activities on learning video documentation?.

## II. METHOD

This study uses a mixed-method. We used the AID model to design the online observation protocol, consisting of analysis, identification, and design stages [11]. Meanwhile, to present the results of using the online observation protocol that we designed, we used a descriptive qualitative method with the observation method. Observations were made on online learning video recordings.

### A. Designing the protocol

The purpose of this study is to design and use the online observation protocol. In particular, the observation aims to see how the teacher teaches, manages the class, and enables students to be actively involved during online learning. In addition, it is also used to measure the level of student participation during the learning process. How many students are active, moderately active, and not at all active. Observational activities will be carried out for a minimum of 3 online learning meetings. It is to see the consistency of data and information that arises from observed subject behavior.

In the observation process, We focused on looking in detail at the online learning settings, online learning activities between teachers and students, the learning process from start to finish, talk material from the teacher and responses from students, the lesson plan documents used, and the teaching materials used by the teacher, as well as learning assessment tools in the form of questions and student answers. As for determining the validity of the observation protocol, two approaches can be used, namely interpretive arguments and validity arguments. The interpretive argument is a network of decisions based on performance. In contrast, the validity argument evaluates conclusions and assumptions from empirical data and analytical reasoning [12], [13].

### B. Data collection methods

The observation data collection used the observation sheet to see the completeness of the teacher's learning procedures and the level of student participation during the learning process. Observation protocol is developed by following a theoretical framework that supports the standard of the online learning process [4]. We revised the observation protocol based on peer and self-evaluation. That is to produce an observation protocol that is suitable for use. The completeness of the teacher's teaching procedure

was measured using an observation sheet containing ten basic teacher teaching skills [14]. Then the level of student participation will be supported by using student activity scale data, namely low (1), medium (2), high (3). Observation activities are carried out during the learning process and for at least one online meeting.

### C. Analyze the data

The data analysis technique used in thematic analysis coding was adopted from the theory [15] described by [16]. Technically, the observation data will be arranged narratively, then the information that appears will be coded and categorized. After being categorized, they have then narrated according to the theme that the research focuses on. Furthermore, each finding will be compared with previous findings to see the consistency and novelty of the research. We use the content analysis method from the observation sheet to identify emerging information. We tabulated data on the level of student involvement in learning using number processing software. Then we narrated the results of the observations in the form of a descriptive narrative.

### D. Trial online observation protocol on online learning video documentation

*Conduct the observation*

Due to the limitation of conducting observation in real context learning as an observation design, we change the observation protocol to the short instruction video. Observations were made for two times 45 minutes to get complete information from the object of observation. The object of the video observed was published on Joy Dalisay's Youtube channel on March 31, 2020. Joy Dalisay is a mathematics language teacher at an international school in Indonesia. At the time of observation, the number of viewers had reached 61,885 visitors. Videos can be seen on the link (<https://www.youtube.com/watch?v=4gJNMD0jWWQ>). The object of the class that was observed was the mathematics learning class in elementary school students. The language of instruction is English. Information on school name, location, and subject name is not available. That way, the teacher is given a code (Teacher), then students are given a code (Student 1, Student 2, and so on). Moreover, parents are given a subject code (Parent 1, Parent 2, Parent 3, and so on). Because the students are still at a low-grade level, their parents accompany the learning process.

During the observation carried outright, the observer used the observation sheet to identify the teacher's teaching process activities during the learning process. And student involvement in learning. We focus on exploring the completeness of the general procedures for learning by the teacher. Then some of the teaching skills are used during the learning process. How many students are active in learning what forms of activity and involvement are shown. How is the

learning assessment process both attitudes, skills, and knowledges?”. In addition, the observer made field notes for data confirmation materials that would be presented in the observation report. Field notes are needed for basic materials to compile results and discuss research results.

### III. RESULT

#### A. Online Observation Protocol

The answer to the first research question is the online observation protocol (Table 1 & Table 2). The practical aspects include teaching processes, including the opening of learning, delivery of core learning materials, the closing of learning, and lesson plans for the next meeting. In comparison, student learning activities include student response as long as a teaching process and student response during the Q and A session.

Meanwhile, the learning assessment process consists of the form of assessment used, collecting student assignments, checking the results of student answers, and providing feedback on student answers. Moreover, the distance learning platform reliability consists of internet connection stability and digital technology support during the learning process. To facilitate the observation of the online learning process, the observer can divide the sessions on each aspect of learning.

Especially when the experience is carried out on learning video documentation, we can divide the experience object session into small parts, for example, every 5 minutes. So that when taking notes on behavior that appears both from the teacher and from students, it can be easier to record and report. In addition, observers can also calculate the most dominant phenomena that appear during the learning process, as we reported in Table 3.

TABLE I. ONLINE OBSERVATION PROTOCOL

Aspect	Observation activities
Teaching process	a. Opening of learning b. Delivery of core learning materials c. Closing of learning d. Lesson plan for the next meeting
Student learning activities	a. Student response as long as the teacher delivers the material b. Student responses during the question and answer session
Learning assessment process	a. The form of assessment used b. The process of working on assignments by students c. The method of collecting duties or test results d. The process of checking the results of students' answers e. Providing feedback on student answers
Distance learning platform reliability	a. The power of the internet network during the online learning process b. The control of digital devices used during the learning process

TABLE II. ONLINE CLASSROOM OBSERVATION FORM

Instructor	:
Subject/Course	:
Observer 1	:
Observer 2	:
Date and Time	
<b>Observation activities</b>	<b>Description / Comments / Remarks</b>
Opening of learning	
Delivery of core learning materials	
Closing of learning	
Lesson plan for the next meeting	
Student response as long as the teacher delivers the material	
Student responses during the question and answer session	
The form of assessment used	
The process of working on assignments by students	
The method of collecting duties or test results	
The process of checking the results of students' answers	
Providing feedback on student answers	
The power of the internet network during the online learning process	
The control of digital devices used during the learning process	

#### B. Online Observation Report

Content analysis and thematic analysis were used to analyze the data. Content analysis is taken from field notes. Then the thematic analysis is used to present the results of the observations. In addition, we used quantitative analysis by making tabulated tables from the Likert scale results regarding the level of student involvement in the learning process. What percentage of students have low, medium, and high levels of involvement. In general, the results of observation activities can be seen in the explanation.

##### a. Opening of Learning

When opening the lesson, the teacher opens it by greeting the students, "Hello, children." After that, the teacher greets students who are already present in online learning. It can be seen that their parents accompanied some students to study, and 16 students joined. At the start of learning, the teacher explains several rules: first, students are asked to show them without thumbs up if they understand. Secondly, when the teacher is talking, students are asked to be quiet and only listen.

##### b. Delivery of Core Learning Materials

The material presented is about learning mathematics. The teacher invites students to remember the material that has been taught in the previous meeting. Then the teacher explains the material to be taught at today's meeting. During the teacher's material

presentation, the first question and answer method shows images in several quantities. Like the number of pictures octopus shows, the students are asked to count how many are there. After that, students are asked to write the numbers corresponding to the pictures shown in their books. The teacher asks one by one the students to answer the teacher's question. Some of the words that teachers often speak include: Can you see the picture?", What is the picture about?", How many pictures do you see?", Use your pencil and letter to write the number! Show your writing! And Good job!".

c. Closing of Learning

At the end of the learning process, the teacher does not make conclusions from all the learning processes. The teacher only said that the students should study at home corresponding tasks that have been sent to the father and her mother. The teacher asks students to do each assigned homework independently. Does the teacher ask if their students miss school? Then all the students answered yes. The teacher asked students to pray for the virus to go away soon. At the end of the session, to check attendance students, the teacher returned to check one by the students present, asking students to raise their hands and show them to the camera. Then all the students and teachers waved at the camera while saying, "bye-bye."

d. Lesson Plan for the Next Meeting

The teacher does not mention what material will be explained at the next meeting. However, the teacher said that some materials and assignments had to be done by students sent to the students' parents.

e. Student Response as Long as the Teacher Delivers the Material

Because the process of presenting the material is conveyed in a question and answer method. Students from beginning to end are required to respond to questions and answers asked by the teacher.

f. The Form of Assessment Used

The teacher's assessment includes seeing students' reactions when given questions, called the pictures names, asked to see pictures when asked to count, mention numbers, write numbers, show writing to the screen.

g. The Process of Working on Assignments by Students

In doing the assignment given by the teacher, students are asked to listen carefully. Then asked to name the picture, count the number of pictures shown by the teacher, write numbers, and show the teacher's numbers. Most of the students did it themselves, and their parents guided some.

h. The Method of Collecting Duties or Test Results

Given that learning is carried out online, the teacher cannot collect student work results in the original physical form. So that the teacher only sees the pictures shown by students during learning. There is no information on whether all student work is documented and sent to the teacher for further assessment. There is no information that they use an online learning platform other than using the zoom meeting facility.

i. Student Responses During the Question and Answer Session

The students responded to the teacher's questions during the lesson. Of the 16 students present, 13 students were actively involved in responding in the audiovisual form. In comparison, two students only showed faces without being accompanied by words. Thus, if classified, then two students enter the low participation group. Seven students enter the medium participation group, and six students enter the high participation group.

j. The Process of Checking the Results of Students' Answers

The process of checking student work results is based on student responses during learning. That is done from the voice answers that appear, then reading, counting, writing, and finding what is written on the screen.

k. Providing Feedback on Student Answers

The teacher provides positive feedback. Some of the words that appear include very good, correct, excellent, and good job.

l. The Power of The Internet Network During the Online Learning Process

In general, the internet connection from start to finish looks smooth. Some students left the classroom for a few minutes, then came back. That can be seen from the number of students who appeared. Initially 15. Then it became 13 and then stabilized until the end of 16 students.

m. The Control of Digital Devices Used During the Learning Process

Twelve students used computers/laptops, while four students used mobile phones based on the observed video. That can be seen from the screen-used, some are landscape, and some are portrait. In addition, it is also seen from the change from landscape to portrait. In terms of the quality of image clarity and sound, in general, the devices used are adequate for synchronous online learning

C. Student engagement level

To measure the level of active student involvement during online learning can be seen in table 1. We use a time differentiator to facilitate the calculation by dividing it into nine terms differentiated by 5 minutes (Table 3). Based on the data in table 3. It can be concluded that the average level of student participation is in the medium and high categories. There are only two students who show a low level of involvement. It is based on the inadequate response when asked to count, write, and show the calculation results. The two students seemed less focused on taking part in learning. Mainly student 1, from beginning to end, her face was not looking at the camera. In addition, student 1 showed an attitude that did not enjoy the learning process. Even though his mother is beside him to study, that is different from student two, who showed a very

enthusiastic attitude during the learning process. Thus the percentage of student involvement can be seen in Fig 1.

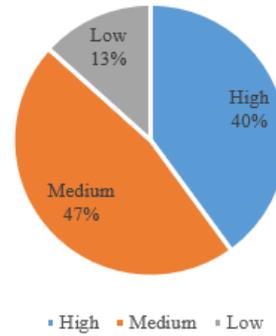


Fig. 1. Student engagement level during the online learning process

TABLE III. STUDENT ENGAGEMENT LEVEL DURING ONLINE LEARNING

Student No	Time Teaching and Observation Periods								
	1-5	6-10	11-15	16-20	21-25	26-30	31-35	36-40	41-45
Student 1	L	L	L	L	L	L	L	L	L
Student 2	H	H	H	H	H	H	H	H	H
Student 3	M	M	M	M	M	M	M	M	M
Student 4	M	M	M	M	H	H	H	H	H
Student 5	H	H	H	H	H	H	H	H	H
Student 6	M	M	M	M	M	M	M	M	M
Student 7	H	H	H	H	H	H	H	H	H
Student 8	H	H	H	H	H	H	H	H	H
Student 9	H	H	H	H	H	H	H	H	H
Student 10	M	M	M	M	M	M	M	M	M
Student 11	H	H	H	H	H	H	H	H	H
Student 12	M	M	M	M	M	M	M	M	M
Student 13	M	M	M	M	H	H	H	H	H
Student 14	M	M	M	M	M	M	M	M	M
Student 15	L	L	L	L	L	L	M	M	M

IV. DISCUSSION

The online observation protocol that we offer aims to help teachers, school principals, education quality units, and researchers conduct comprehensive observations of the learning process. In addition, we also report the results of our trials to measure student engagement in online learning activities using the online observation that we designed. In general, the learning process went quite well from start to finish (45 minutes). The teacher prepares the teaching materials used during the learning process, delivering the material in order. The teacher provides opportunities for all students to be active, and the teacher guides the students patiently.

Some students are actively involved in learning and look enthusiastic in responding to all material and teacher questions and requests. Some things that need

to be improved include the audio settings for each student's device. The students are challenging to arrange to speak one by one. That can be understood because students tend to like to talk. Perhaps the role of parents needs to be maximized in guiding students not to speak when they are not their turn. In addition, the lighting from the teacher also needs to be improved to make it easier for students to see the material presented by the teacher. We see the teacher guiding students with great patience. Also, prepares the best possible teaching materials. Then she has tried to activate all the students and then provide positive feedback to students.

The observation activity ran smoothly according to the planned design. Although the researcher found obstacles to explore in detail, given the class objects observed in grade 1, the learning

process activated all students. So that the sound appears hectic, we need to take several repeats to play the video to get the information accurately. At least we did it up to 3 times. However, the researcher can identify all the subject's behavior in detail because it can repeat the observation until standard data is obtained for analysis.

In general, the experience of compiling observation protocols, conducting peer evaluation activities on the observation design, and conducting mini-observation has provided a valuable new learning experience. We learned to design observations that fit a solid theoretical framework. We derive the item of observation from the previously existing theory. Then we can give each other input on each other's designs. Moreover, finally, we can practice directly how the observation process is carried out. The most important thing is carrying out observations, compiling field notes, analyzing data, and reporting them. Content validation needs to be considered in developing an online observation protocol to follow the needs [13].

To carry out a good observation process, the observer must determine the problem to be observed. Then describe clearly the purpose of the observation. It is not easy to find learning videos that are interesting to observe. After finding the object of the behavior that you want to observe and the subject group, the observer must prepare an observation sheet as needed. In addition, to avoid subjective data collection processes, it is best if at least two people make observations. Alternatively, it is better to record learning activities to facilitate the review process after the observation. Specifically for observing activities on video objects as we did, one observer is sufficient. However, the observation process must be done repeatedly, at least twice.

The online observation protocol is helpful to assist researchers, teachers, and stakeholders in observing the process and evaluating it for improvement. The level of student response activity and student involvement in participating in the entire learning process is important to note. In addition, it also needs to be remembered that learning is a process of interaction between students and the environment, so student participation needs to be emphasized [17]. Educational technology has a role in helping find solutions to every problem faced by teachers and students in the learning process [18]. Good learning quality can increase student satisfaction with teacher performance in learning [19]. In a more advanced context, observational data can be supported by the use of technology such as analytical learning that is integrated with the learning management system used [20]. Teachers can add learning analytics dashboard features to measure student behavior automatically with attractive visualizations [21]. The data can be useful for both teachers and students and can be used as a control and reminder to achieve peak learning performance.

## V. CONCLUSION

Our comprehensive research question asked about the online observation protocol that can be used to observe the online learning process directly and from the documentation of learning video recordings and how to report trial results from the protocol we designed. We offer an online learning observation protocol design consisting of four aspects and 13 indicators. In addition, we present a systematic trial process and an example of a report on the results of our observations. This study was limited to a trial using a 45-minute learning video recording using one observer due to the limited time to test it in authentic online learning situations. Future research can be done in testing natural online learning settings with a longer duration. In addition, it is necessary to pay attention to the number of observers to obtain more comprehensive information.

## REFERENCES

- [1] D. Gitomer, C. Bell, Y. Qi, D. McCaffrey, B. Hamre, and R. Pianta, "The instructional challenge in improving teaching quality: Lessons from a classroom observation protocol," *Teach. Coll. Rec.*, vol. 116, no. 6, pp. 1–32, 2014.
- [2] J. Park, Y.-S. Park, Y. Kim, and J.-S. Jeong, "The development of the Korean teaching observation protocol (KTOP) for improving science teaching and learning," *J. Balt. Sci. Educ.*, vol. 13, no. 2, p. 259, 2014.
- [3] L. Wang, W. Pei, X. Li, and J. Zhou, "Research on distributed integrated control method for wheeled mobile robot with skid steering," in *Proceedings of the 2020 4th International Symposium on Computer Science and Intelligent Control, 2020*, pp. 1–7.
- [4] D. Swinglehurst, J. Russell, and T. Greenhalgh, "Peer observation of teaching in the online environment: an action research approach," *J. Comput. Assist. Learn.*, vol. 24, no. 5, pp. 383–393, 2008.
- [5] P. Shekhar et al., "Development of an observation protocol to study undergraduate engineering student resistance to active learning," *Int. J. Eng. Educ.*, vol. 31, no. 2, pp. 597–609, 2015.
- [6] M. K. Smith, F. H. M. Jones, S. L. Gilbert, and C. E. Wieman, "The Classroom Observation Protocol for Undergraduate STEM (COPUS): A new instrument to characterize university STEM classroom practices," *CBE—Life Sci. Educ.*, vol. 12, no. 4, pp. 618–627, 2013.
- [7] J. Gleason, S. Livers, and J. Zekowski, "Mathematics classroom observation protocol for practices (MCOP2): A validation study," *Investig. Math. Learn.*, vol. 9, no. 3, pp. 111–129, 2017.
- [8] C. Walkington et al., "Development of the UTeach observation protocol: A classroom observation instrument to evaluate mathematics and science teachers from the UTeach preparation program," *Unpubl. Pap. South. Methodist Univ.*, 2012.
- [9] D. Sawada et al., "Measuring reform practices in science and mathematics classrooms: The reformed teaching observation protocol," *Sch. Sci. Math.*, vol. 102, no. 6, pp. 245–253, 2002.
- [10] M. T. Hora, A. Oleson, and J. J. Ferrare, "Teaching dimensions observation protocol (TDOP) user's manual," *Madison Wisconsin Cent. Educ. Res.*, 2013.
- [11] E. Surahman, D. Kuswandi, A. Wedi, Z. Z. A. Thaariq, and R. C. Diana, "Model Design of Adaptive Learning Analytics Management System (ALAMS) Using AID Model," in the *4th International Conference on Education and Management (COEMA 2019)*, 2019.
- [12] C. A. Bell, D. H. Gitomer, D. F. McCaffrey, B. K. Hamre, R. C. Pianta, and Y. Qi, "An argument approach to observation

- protocol validity," *Educ. Assess.*, vol. 17, no. 2–3, pp. 62–87, 2012.
- [13] L. B. Wheeler, S. L. Navy, J. L. Maeng, and B. A. Whitworth, "Development and validation of the classroom observation protocol for engineering design (COPED)," *J. Res. Sci. Teach.*, vol. 56, no. 9, pp. 1285–1305, 2019.
- [14] N. A. Flanders, "Basic teaching skills derived from a model of speaking and listening," *J. Teach. Educ.*, vol. 24, no. 1, pp. 24–37, 1973.
- [15] A. Bryman and R. G. Burgess, "Developments in qualitative data analysis: an introduction," in *Analyzing qualitative data*, Routledge, 2002, pp. 15–31.
- [16] G. R. Gibbs, "Coding part 1: Alan Bryman's 4 stages of qualitative analysis [Video file]," Retrieved from <http://uoutu.be.com.ua/ch'.h>, vol. 7, p. Y7VuQ, 2010.
- [17] A. Johannsen, K. Bolander-Laksov, N. Bjurshammar, B. Nordgren, C. Fridén, and M. Hagströmer, "Enhancing meaningful learning and self-efficacy through collaboration between dental hygienist and physiotherapist students - a scholarship project," *Int. J. Dent. Hyg.*, vol. 10, no. 4, pp. 270–276, 2012.
- [18] Z. Z. A. Thariq and E. Surahman, "How does educational technology answer challenges? Empirical theoretical studies and public perspectives," *J. Educ. Learn.*, vol. 15, no. 3, pp. 474–482, 2021.
- [19] Surahman and Sulthoni, "Student Satisfaction toward Quality of Online Learning in Indonesian Higher Education During the Covid-19 Pandemic," in *2020 6th International Conference on Education and Technology (ICET)*, 2020, pp. 120–125.
- [20] E. Surahman, D. Kuswandi, A. Wedi, I. N. S. Degeng, D. A. Setyanti, and Z. Z. A. Thariq, "Adaptive learning analytics management system (Alams): An innovative online learning approach," *Int. J. Innov. Creat. Chang.*, vol. 5, no. 4, pp. 413–430, 2019.
- [21] S. Ulfa, I. Fattawi, E. Surahman, and H. Yusuke, "Investigating Learners' Perception of Learning Analytics Dashboard to Improve Learning Interaction in Online Learning System," in *2019 5th International Conference on Education and Technology (ICET)*, 2019, pp. 49–54.