Procedia of Social Sciences and Humanities

Proceding of the International Conference on Intellectuals' Global Responsibility 2020 (ICIGR):
Science for Handling the Effects of Covid-19, Facing the New Normal, and Improving Public Welfare

Web-Based Instrument Development Workshop as Supporting Materials for Online Learning

Isnanik Juni Fitriyah[1*], Sugiyanto[1], Erni Yulianti[1], Novida Pratiwi[1], Muhammad Fajar Marsuki[1], Siti Mualifah[1], Muhammad Adi Widodo[1]
*isnanik.fitriyah.fmipa@um.ac.id
Universitas Negeri Malang, Jalan Semarang 5, Malang 65145, East Java, Indonesia

Abstract. The development of information and communication technology is currently driving the development of internet networks around the world. This internet can be useful in various fields including education. Education is currently experiencing system changes as a result of the COVID-19 pandemic. The learning is carried out online. Therefore, it takes teacher skills in preparing online learning media. Based on this, a web-based instrument development workshop activity was carried out for science teachers in the IPA MGMP of Jombang Regency. The number of participants was 65 science teachers in the IPA MGMP of Jombang Regency. The workshop was held for three days online via the zoom platform. The first two days were the delivery of learning video development materials using the OBS application, google form, quizizz and google classroom then the participants worked independently. The third day was a presentation of the participants' independent work. The workshop participants were enthusiastic about participating in the workshop as seen from the zpost-workshop survey results. This workshop resulted in 60 web-based instrument products and articles on the development of participant instruments.

Keywords: learning instruments, web-based learning instrument, online learning, COVID-19.

1 Introduction

The rapid development of information technology at this time has contributed to the extraordinary growth and development of internet networks. With internet technology, computers around the world can be connected to each other so that they can be used to share information [1]. In the field of education, the internet allows users to have easy access to various information. When compared to books and libraries, searching for information via the internet is faster and easier [2]. Another benefit of the internet in education is that it can function as a learning medium [3]

The COVID-19 virus has spread throughout the world as well as throughout Indonesia (4). The current COVID-19 pandemic has led to system changes including in education which require students to study from home online [4]. Based on Law No. 14 of 2005, teachers have the main task of educating, teaching, guiding, directing, assessing and evaluating students. Even though learning is currently carried out from home, this main task must still be carried out by the teacher.

Online learning as a government policy in the current COVID-19 pandemic makes it difficult for teachers to provide lessons to their students in class [5]. This is because the teacher does not meet face to face with students so that the teacher cannot control students in learning. In fact, teaching, guiding and judging activities must be carried out because these are the main

ISSN 2722-0672 (online), https://pssh.umsida.ac.id. Published by Universitas Muhammadiyah Sidoarjo

duties of the teacher. To be able to carry out these basic tasks during the current COVID-19 pandemic, teachers need to prepare learning instruments that can be used in online learning [6]. In this case, the web as an internet provider can be used to create learning instruments. Therefore, the ability of teachers to build and develop web-based learning resources needs to exist and be developed.

Based on the description above, the Science Education Study Program FMIPA State University of Malang intends to hold community service activities in the form of workshop on the development of web-based learning instruments for science teachers in the IPA MGMP of Jombang Regency. The workshop aims to broaden knowledge and skills in making instruments in web-assisted learning as a learning tool during the COVID-19 pandemic. The results of this development can be stated in a scientific article, which can then be published in seminars / proceedings / journals, which will increase teacher professionalism.

2 Method

2.1 Target

The target of this workshop activity is the science teachers who are members of the MGMP IPA Kabupaten Jombang totaling 65 teachers.

2.2 Implementation Stage

The following are the implementation stages of this workshop:

a. Preparation

The activities carried out during the preparation are designing schedules, workshop materials, determining workshop speakers and publication of workshop activities.

b. Implementation

The workshop implementation activities were held for three consecutive days through the zoom meeting platform, from 15, 16 and 17 June 2020. The activities on the first and second days were material delivery, questions and answers and participant independent work. Meanwhile, the third day is a presentation of the participants' independent work and delivery of messages and impressions.

c. Post Implementation

After the workshop was completed, a post-work-shop survey was carried out to the participants, guidance in making articles from the development of participant web-based learning instruments with lecturers of Science Education, FMIPA, UM, then compiling activity reports.

2.3 Data Collection Technique

The data taken during the workshop is the attendance of participants via google form, collection of participant's independent work via google form and questionnaire responses of participants after workshop via google form.

3 Results and Discussion

Community service activities in the form of web-based instrument development workshop for 65 science teachers in the IPA MGMP of Jombang Regency have been completed. The material presented is several application media that can be used in making web-based learning

ISSN 2722-0672 (online), https://pssh.umsida.ac.id. Published by Universitas Muhammadiyah Sidoarjo

instruments (digital media) that can be used as teaching materials during the current COVID-19 pandemic. The following is a table of the lecturer presenters along with the material presented on the first day:

Table 1. List of presenters for the first day of workshop (15 June 2020)

No	Lecturer Name	Title of Material
1	Muhammad Fajar Marsuki, S.Pd., M.Sc.	Making Simple Learning Videos
2	Yessi Affriyenni, S.Pd., M.Sc.	Utilization of Google Forms in Assessment

The first material is about making simple learning videos. In delivering the material, the speaker explained the differences in conditions before, during and after the COVID-19 pandemic, student obstacles when learning online, the need for learning content and gave examples of making learning videos using the OBS application. Therefore, with the teacher having the skills in making instructional videos, this can help the teacher continue to carry out their duties in teaching and guiding students. By using instructional videos, it is hoped that all students can get the same and even learning information [7].

The second material is about the use of google form. In delivering the material, the speaker explained about the google form function, the benefits of google form in assessment, preparation for using google form and simulation using google form for assessment. Google form is a google service that can be used in the world of education because it can be used to give online practice assignments, collect other people's responses, collect student data and distribute questionnaires [8]. With the teacher having the skills to make a google form, it is hoped that the teacher can take advantage of the google form in assessing learning to students. This Google form also has the advantage of simple and free operation [9].

The following is a table of the lecturer presenters along with the material presented on the second day:

Table 2. List of presenters for the second day of workshop (16 June 2020)

No	Lecturer Name	Title of Material
1	Isnanik Juni Fitriyah, S.Pd., M.Si.	Utilization of Quizizz Learning Application
2	Agung Mulyo Setiawan, S.Pd., M.Si.	Making Online Classes Using Google Classroom via Android Phones

The first material on the second day is about the use of quizizz learning applications that can be used to do tests on students. In delivering the material, the speaker explained about the introduction of the quizizz application, tutorials for registering a quizizz account and tutorials on making questions in the quizizz application. Using quizizz for learning has many advantages, including an attractive appearance so that it doesn't make students boring, there is a time setting for each question and it can be used for simultaneous tests at the same time even though the place is different because it is online based and the grade is automatically ranked [10].

The next second material is about making online classes using google classroom via an android cellphone. In delivering the material, the speaker explains about LMS (Learning Management System), content that can be included in google classroom, and tutorials on how

ISSN 2722-0672 (online), https://pssh.umsida.ac.id. Published by Universitas Muhammadiyah Sidoarjo

to download google classroom (creating an account, creating a class, filling in content in a class that has been made). Google classroom is a service from Google to facilitate online space that can be used for learning [11]. This makes google classroom suitable for online learning during the current COVID-19 pandemic because it can carry out learning program activities such as giving assignments [12], providing material and presence [13]. In use in the field, google classroom has also proven that students like online learning using google classroom [14]. Documentation of online workshop activities can be seen in Figure 1 and Figure 2.

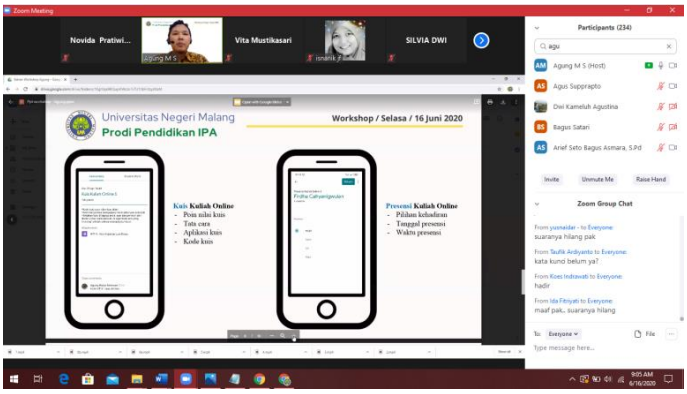

Fig. 1. Workshop documentation on the use of google classroom materials by Mr. Agung Mulyo Setiawan.

Fig. 2. Documentation of workshop participants**.**

In the question and answer session for the four materials, there were several questions, including computer specifications for the OBS application and the teacher's video display in the OBS application. This indicates that some teachers are still unfamiliar with making videos using the OBS application. Direct questions are answered by the speaker during the workshop. Other questions are regarding the timing of the google form, limiting the number of questions and participants in the quiziz and the need for registering google classroom by schools.

Independent work is carried out by participants after the presentation of material and question and answer sessions on the first and second days are over. Then, on the third day, four participants representing four different developments made a presentation on the results of their independent work. The workshop participants looked enthusiastic, seen from the collection of the results of their independent work totaling 60 out of 65 participants. In addition, the survey results after the workshop also showed that the participants had judged that the implementation

ISSN 2722-0672 (online), https://pssh.umsida.ac.id. Published by Universitas Muhammadiyah Sidoarjo

of the workshop was going well with a number of suggestions, namely adding time for question and answer sessions, improvements to audio and suggested themes for further workshop.

In the overall implementation, there were some problems such as unclear audio and network errors. This is because the implementation of the workshop was carried out online and was attended by 65 science teachers in Jombang from various regions.

The results of the independent work that had been developed by the participants were further developed into an article with the guidance of a lecturer in the Science Education Study Program, FMIPA, State University of Malang. This article will be presented in the 5th National Science Learning Seminar at State University of Malang and in the Science Learning Journal. With the teacher publishing articles, this can improve teacher professionalism [15].

4 Conclusion

This community service activity in the form of a web-based instrument development workshop has been carried out by the Science Education Study Program FMIPA State University of Malang for science teachers in the IPA MGMP of Jombang Regency as the embodiment of the Tridharma of Higher Education to help teachers in learning, especially in the current COVID-19 pandemic. This community service activity needs to be improved because there are still technical problems considering the online workshop system and carried out simultaneously by science teachers in the IPA MGMP of Jombang Regency. It is necessary to hold workshop for the development of other instruments again in order to further broaden the knowledge and skills of teachers. With this, it is expected that teaching and learning activities and teacher duties will be carried out optimally in all situations and conditions.

Acknowledgments. We would like to thank the Faculty of Mathematics and Natural Sciences, State University of Malang as the provider of PNBP funds so that the workshop on developing web-based learning instruments can be carried out well. We also thank the Science Education lecturers who have been the presenters and the entire workshop organizing committee.

References

[1] T. Alam dan M. Benaida, "Blockchain and Internet of Things in Higher Education," *Univers. J. Educ. Res.*, vol. 8, no. 5, hal. 2164–2174, 2020, doi: 10.13189/ujer.2020.080556.

[2] M. L. Bernacki, J. A. Greene, dan H. Crompton, "Mobile Technology, Learning, and Achievement: Advances in Understanding and Measuring The Role of Mobile Technology in Education," *Contemp. Educ. Psychol.*, hal. 1–34, 2019, doi: 10.1016/j.cedpsych.2019.101827.

[3] T. Hikmawan, N. Sutarni, dan A. Hufad, "The Role of Electronic Learning Media in Creativity Learning," *J. Phys. Conf. Ser.*, vol. 1375, no. 1, hal. 1–6, 2019, doi: 10.1088/1742-6596/1375/1/012030.

[4] Y. K. Dwivedi *dkk.*, "Impact of COVID-19 Pandemic on Information Management Research and Practice: Transforming Education, Work and Life," *Int. J. Inf. Manage.*, vol. xxx, no. xxxx, hal. 102211, 2020, doi: 10.1016/j.ijinfomgt.2020.102211.

[5] Mailizar, A. Almanthari, S. Maulina, dan S. Bruce, "Secondary School Mathematics Teachers' Views on E-learning Implementation Barriers During The COVID-19 Pandemic: The Case of Indonesia," *Eurasia J. Math. Sci. Technol. Educ.*, vol. 16, no. 7,

ISSN 2722-0672 (online), https://pssh.umsida.ac.id. Published by Universitas Muhammadiyah Sidoarjo

hal. 1–9, 2020, doi: 10.29333/EJMSTE/8240.
[6] R. A. Khan dan M. Jawaid, "Technology Enhanced Assesment (TEA) in COVID 19 Pandemic," *Pakistan J. Med. Sci.*, vol. 36, no. COVID19-S4, hal. 108–110, 2020, doi: 10.12669/pjms.36.COVID19-S4.2795.
[7] N. Nurwulan, M. F. Nugraha, dan B. Hendrawan, "Improving Learning Outcomes of 2 nd Grade Students Through Video-Based Learning Media," *Int. J. Elem. Educ.*, vol. 4, no. 3, hal. 406–413, 2020.
[8] S. P. Dewi, D. Zen, dan M. E. Haryani, "Development of An Online-Based Instrument Prior Knowledge on The Concept of Cellular Respiration," *J. Phys. Conf. Ser.*, vol. 1480, no. 1, hal. 0–8, 2020, doi: 10.1088/1742-6596/1480/1/012067.
[9] Rachmawati, "Pengembangan Instrumen Penilaian Tes Berbasis Mobile Online pada Prodi Pendidikan Matematika," *J. Pendidik. Mat.*, vol. 4, no. 1, hal. 46–63, 2020.
[10] A. Yulia, "Pemanfaatan Media Pembelajaran Quizizz untuk Pembelajaran Pendidikan Dasar dan Menengah di Bengkulu," *Kependidikan*, vol. 2, no. 25, hal. 1–6, 2019.
[11] U. Manav, R. Gupta, dan R. Kamra, "Optimized LMS : A Solution to Online Learning in Covid-19," no. 3, hal. 144–147, 2020.
[12] Abd. Syakur, Sugirin, dan Widiarni, "The Effectiveness of English Learning Media through Google Classroom in Higher Education," *Britain Int. Linguist. Arts Educ. J.*, vol. 2, no. 1, hal. 475–483, 2020, doi: 10.33258/biolae.v2i1.218.
[13] M. Nia dan K. Kartini, "Penggunaan Google Classroom sebagai Pengembangan Kelas Virtual dalam Keterampilan Pemecahan Masalah Topik Kinematika pada Mahasiswa Jurusan Sistem Komputer," *J. Sci. Educ.*, vol. 3, no. 3, hal. 167–173, 2019.
[14] A. Sudibjo, "Penggunaan Media Pembelajaran IPA Berbasis Google Classroom pada Materi Alat Optik untuk Meningkatkan Respons Motivasi dan Hasil Belajar Siswa di SMP Negeri 4 Surabaya," *J. Educ. Dev.*, vol. 7, no. 3, hal. 278–284, 2019.
[15] R. Martínez-Jiménez dan M. C. Ruiz-Jiménez, "Improving Students' Satisfaction and Learning Performance Using Flipped Classroom," *Int. J. Manag. Educ.*, vol. 18, no. 3, 2020, doi: 10.1016/j.ijme.2020.100422.

ISSN 2722-0672 (online), https://pssh.umsida.ac.id. Published by Universitas Muhammadiyah Sidoarjo