

Training on Making Bedak Media (Chemistry Online Learning) as a Distance Learning Solution

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Abstract

The Covid 19 pandemic has hit all countries including Indonesia. Indonesia was hit by a pandemic starting in early March 2020. With this pandemic, Indonesia is required to be prepared for the potential spread of this virus. This is due to the geographical location of Indonesia which is directly adjacent to several countries affected by the spread of the Covid-19 virus as well as the development of globalization and increasingly smooth traffic between countries. One way to reduce the rate of spread of this virus is by implementing Large-Scale Social Restrictions (PSBB) so that all activities in schools and offices are carried out in a work from home (WFH) manner. Learning activities cannot be carried out directly so that learning in this period utilizes existing technology so that students still understand the material. As one solution to improving the quality of learning, the program activities make a product in the form of a learning video that is very interesting and fun so that students don't feel bored when participating in distance learning.

Keywords: pandemic, technology, learning video.

I. INTRODUCTION

The 2019 corona virus disease (Covid-19) outbreak has hit the world, thus providing challenges for every country from various sectors. Indonesia for the first time confirmed the COVID-19 case on Monday 2 March 2020 announced by President Joko Widodo where two Indonesians were positive for the Corona virus, namely a 31-year-old woman and a 64-year-old mother. ¹ According to the FKM UI teaching staff, Pandu Riono actually local transmission has occurred, there is already ODP in the area, in fact we assume the virus has been circulating since the 3rd week of January. Patients infected with the Corona virus can infect 2-3 other people with an average transmission time of 5 days, and this is what makes it difficult to reduce the rate of the Corona pandemic in Indonesia. Indonesia must be prepared for the potential spread of Covid-19, due to Indonesia's geographic location which is directly adjacent to several countries affected by the spread of the Covid-19 virus as well as the development of globalization and increasingly smooth traffic between countries. ²

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¹ Kompas. "FKM UI Ungkap Corona Masuk RI Sejak Januari, Pemerintah: Kenapa Baru Bilang?", (2020), online: <<https://news.detik.com/berita/d-4983197/fkm-ui-ungkap-corona-masuk-ri-sejak-januari-pemerintah-kenapa-baru-bilang>>.

² Suni, Nur Sholikhah Putri. "Kesiapsiagaan Indonesia Menghadapi Potensi Penyebaran Corona Virus Disease", (2020), online: <https://berkas.dpr.go.id/puslit/files/info_singkat/Info%20Singkat-XII-3-I-P3DI-Februari-2020-1957.pdf>.

has been circulating since the 3rd week of January. Patients infected with the Corona virus can infect 2-3 other people with an average transmission time of 5 days, and this is what makes it difficult to reduce the rate of the Corona pandemic in Indonesia. Indonesia must be prepared for the potential spread of Covid-19, due to Indonesia's geographic location which is directly adjacent to several countries affected by the spread of the Covid-19 virus as well as the development of globalization and increasingly smooth traffic between countries. Through Circular Number 36962 / MPK.A / HK / 2020 the Ministry of Education and Culture (Mendikbud) Nadiem Anwar Makarim requested that learning activities in affected areas become a relevant model in the current Covid-19 pandemic conditions. Distance learning can still have the impact of Corona Virus Disease (Covid-19) by utilizing technology. The Ministry of Education and Culture (Kemendikbud) assesses distance learning.³

The conditions of the Covid-19 pandemic have resulted in significant changes, including in the field of education. It is as if all levels of education are forced to suddenly adapt drastically in learning from home through online media. This problem is not an easy thing, because there is no proper readiness. However, teaching and learning activities must still be carried out so that education in Indonesia is guaranteed. Teachers have inherent duties and functions, so they must be carried out. This is because teachers are expected to be able to carry out education and teaching and learning activities in any situation. In current conditions, teachers are required to increase their creativity as facilitators in the teaching and learning process.

At times like this, educators are required to carry out learning creatively by utilizing the available learning media. This needs to be adjusted according to the level of education in their needs. A positive mindset is needed by educators and students in applying online learning media so that the learning outcomes carried out can remain high quality.

The Covid-19 pandemic period can be used as an opportunity in the world of education to utilize technology in line with industry 4.0. The hope of utilizing technology in education is that post-pandemic, we become familiar with the current system as a culture of learning in education.

Teachers, lecturers and parents have tough challenges at this time. Not a few parents have complained about the learning activities that are taking place as it is today. Especially for parents who work from home (WFH), apart from working from home, they also have to support their children.

³ Kementerian Pendidikan dan Kebudayaan. "SE Mendikbud: Pembelajaran secara Daring dan Bekerja dari Rumah untuk Mencegah Penyebaran Covid-19", (2020), online: <<https://www.kemdikbud.go.id/main/blog/2020/03/se-mendikbud-pembelajaran-secara-daring-dan-bekerja-dari-rumah-untuk-mencegah-penyebaran-covid19>>.

Learning at this time utilizes many applications, such as making videos using the Kinemaster application, the Moodle application, Google Classroom, and various applications connected to educational institutions. According to Arsyad (2011), the video media used in the teaching and learning process has many benefits and advantages, including video that is a substitute for the surrounding environment and can show objects that students cannot normally see, such as material on the process of digesting food and breathing, videos can describe a process precisely and can be viewed repeatedly, videos also encourage and increase student motivation to keep seeing it

II. REVIEW OF THE PROBLEM

Education is one aspect that can be used as a forum for shaping the character of the nation. Therefore, educators must be able to master various kinds of learning media because conditions are always changing. Including this period, during the Covid-19 pandemic that hit the world, various sectors experienced changes and were required to adapt to existing conditions. The education sector must also change its implementation and adapt learning media during the Covid-19 pandemic.

The Covid 19 pandemic is experienced by all countries including Indonesia. This pandemic hampered all activities, both school and office activities. So that both students, students, and workers need to do their activities at home or in other words work from home (WFH). WFH has a significant impact on various aspects. Aspects affected are education, politics, culture, social, security and defense as well as economy

The existence of regulations to implement large-scale social restrictions (PSBB) means that temporarily teaching and learning activities cannot be carried out at schools or campuses. Therefore, the teaching and learning process must be carried out in each home (study from home).

One of the impacts of the Covid-19 pandemic is the change in learning media that initially used a face-to-face system in the classroom. However, because of the Covid-19 pandemic, which is the process of transmission through direct contact with sufferers, the government prohibits holding gatherings including face-to-face learning activities. The world of education was affected by this pandemic so that learning had to be converted into online learning or distance learning.

The Covid-19 pandemic is a type of outbreak that has a very high and fast spread rate. This virus attacks the human immune and respiratory systems. In an effort to prevent the spread of Covid-19, the World Health Organization (WHO) recommends stopping various activities that could potentially cause crowds. According to Caley, Philp & McCracken, prevention can be done by avoiding direct interaction of an infected person with people who are at risk of being exposed to this virus. According to Bell et al, managing distance and direct interaction in an effort to suppress the spread of the virus is called social distancing. Social Distancing is staying away from associations,

avoiding mass gatherings, and maintaining distance between people. Social restrictions / distancing are taken to prevent the transmission of Covid-19 so that it does not spread widely in the State of Indonesia. Social Distancing is very influential in preventing the spread of Covid-19. Therefore, conventional learning that gathers many students and students in one room needs to be reviewed the implementation process. Learning must be done by minimizing physical contact. According to Milman, the use of digital technology can be a solution in the learning process at this time.

One of the alternative forms of learning that can be used during a pandemic is online learning. According to Hartanto, a form of information technology development that can be used as a learning medium is using e-learning (online learning). Moore, Dickson-Deane, & Galyen, online learning is learning that uses an internet network of accessibility, connectivity, flexibility, and the ability to generate various types of learning interactions. Research conducted by Zhang et al., (2004) shows that the use of the internet and multimedia technology is able to change the way of conveying knowledge and can be an alternative to learning carried out in traditional classrooms.

Online learning is very different from learning as usual, according to Riyana, online learning emphasizes the thoroughness and foresight of students in receiving and processing information presented online. In practice, online learning requires the support of mobile devices such as smartphones, tablets and laptops which can be used to access information anywhere and anytime. ⁴ According to Korucu & Alkan, the use of mobile technology has a major contribution in the world of education, including the achievement of distance learning goals. Online learning is learning that takes place with the help of the internet. Online learning is learning that is supported by an internet connection that is interconnected all over the world.

According to Dewi regarding online learning, she interpreted online learning as an educational innovation in responding to the challenges of the availability of various learning resources. The success of a model or learning media depends on the characteristics of the students. ⁵ According to Windhiyana, the advantages of doing online learning, one of which is increasing the level of interaction between students and lecturers / teachers, learning can be done anywhere and anytime (time and place flexibility), Reaching students in a broad scope (potential to reach) a global audience), and make it easier to enhance and store learning materials (easy updating of content as well as archivable capabilities). ⁶ Online teaching and learning activities are one of the solutions in solving educational problems regarding the implementation of learning. Online learning is a method of teaching and learning activities that uses an interactive model using the Internet and the Learning Management System (LMS). Online

⁴ Riyana, C. *Produksi Bahan Pembelajaran Berbasis Online* (Universitas Terbuka, 2019).

⁵ Dewi, Wahyu Aji Fatma. "Dampak Covid-19 terhadap Implementasi Pembelajaran Daring di Sekolah Dasar" (2020) 2:1 *Edukatif Jurnal Ilmu Pendidikan*.

⁶ Windhiyana, E. "Dampak Covid-19 Terhadap Kegiatan Pembelajaran Online Di Sebuah Perguruan Tinggi Kristen di Indonesia" (2020) 34:1 *Perspektif Ilmu Pendidikan* 1.

teaching and learning activities usually use Zoom, Google Meet, Microsoft Teams 365, and so on. These applications can support teaching and learning activities in conditions like this.

In carrying out online learning, mobile devices such as smartphones or laptops, computers, tablets are used to access information anytime and anywhere, not limited by time and space.⁷ Online learning is needed in teaching and learning activities in the era of the industrial revolution 4.0.⁸ According to Muhammad, teaching and learning activities carried out online are carried out by teachers or lecturers interactively through video conferencing.⁹

The teacher or lecturer must choose what learning media can be used in learning so as not to miss the material that must be conveyed to students. Therefore, educators are asked to master the various kinds of learning media used at this time.

Media as one of the supports in the learning process. The success or failure of a learning activity is very much determined by the media used. Media is a tool that can be used in transmitting messages from sender to recipient so that it can stimulate thoughts, feelings, attention and interests. In learning media that is stimulated are thoughts, feelings, concerns and interests of students during the learning process.¹⁰ Dabbagh and Ritland explain about online learning, they define learning as an open and distributed learning system using pedagogical devices (educational aids), which are used via the internet and network-based technology to facilitate teaching and learning activities and transfer knowledge through meaningful action and interaction.¹¹

Online learning media are media that are equipped with a controller that can be operated by the user, so that the user can control and access what is needed, for example downloading assignments or resources as learning material. The advantage of using online learning media is that teaching and learning activities are independent and have high interactivity and are able to increase memory levels, provide more learning experiences, with text, audio, video and animation that can be used in the process of delivering information on learning material. In addition, online learning media makes it easy to deliver, update content, and download. Students can also interact with other students, by posting comments on discussion forums, utilizing chat rooms, and being able to conduct online meetings to communicate directly.¹² Another advantage of

⁷ Gikas, J., & Grant, M. M. "Mobile Computing Devices In Higher Education: Student Perspectives On Learning With Cellphones, Smarthphones & Social Media" (2013) *The Internet and Higher Education*.

⁸ Pangondian, R. A., Santosa, P. I., & Nugroho, E. "Faktor-Faktor Yang mempengaruhi KESuksesan Pembelajaran Daring dalam Revolusi Industri 4.0 (2019) 1:1 *Seminar Nasional Teknologi Komputer & Sains (SAINTEKS)*.

⁹ Muhammad, H. "Kemendikbud Sebut PJJ Tak Sama dengan Pembelajaran Daring dan Luring", (2020), <<https://www.jawapos.com/nasional/pendidikan/17/06/2020/kemendikbud-sebut-pjj-tak-sama-dengan-pembelajaran-daring-dan-luring/>>.

¹⁰ Ahmad, Arsyad. *Media Pembelajaran* (Jakarta: Raja Grafindo Persada, 2005).

¹¹ Dabbagh, N. & Ritland, B. *Online Learning, Concepts, Strategies and Application*. (Ohio: Pearson, 2005)

¹² Dryden, Gordon. & Vos, J. *Revolusi Cara Belajar*. (Bandung: Kaifa, 2001).

online learning is that there is flexibility in the time and place of learning, for example learning can be done in the room, living room and so on as well as adjusted times for example morning, afternoon, evening or night and can overcome distance problems because students do not need to go to school or to campus to study. There are no boundaries and can cover a large area. Students or students get another advantage from this online learning, namely building a new atmosphere of teaching and learning activities, which are usually in class but now can only be via the internet.¹³

According to Okinisih and Suyoto, online learning also has the advantage of being able to foster independent learning (self-regulated learning).¹⁴ The use of online applications can increase learning independence. Increase the ability and willingness in the learning process by directing the learning process according to the needs he wants or also known as self-directed learning or often abbreviated as SDL.¹⁵ According to Gibbons, the learning process using SDL is considered successful if the student has been able to direct the learning process without any help from the learner.¹⁶ *E-learning (online learning) is one of the lessons that has been widely used in universities today since the issuance of the regulations stipulated in Article 31 of Law No. 20 of 2003 concerning the National Education System, namely regarding distance learning.*

¹⁷Kuo et al stated that online learning is more student-centered which causes them to be able to create responsibility and autonomy in learning (autonomous learning). Learning online requires students to prepare their own learning, evaluate, organize and simultaneously maintain motivation in learning.¹⁸

Several online learning models according to Haugey and Anderson in the book *Networked Learning: The Pedagogy of The Internet* explain that there are three models of e-learning models, namely (1) Web Course, namely lectures conducted via the web are whole online learning that there is a communication pattern between students with lecturers who are dominated by remote systems via web / internet and face-to-face meetings do not occur. All teaching materials, assignments, consultations, exams, and other learning activities are delivered via the internet, (2) the Web Centric Course, which combines distance and face-to-face online learning in this model of

¹³ Sari, P. "Memotivasi Belajar dengan Menggunakan E-Learning" (2015) 6:2 *Jurnal Ummul Quro* 20.

¹⁴ Okinisih, N., & Suyoto, S. "Penggunaan Apln (Aplikasi Online) Sebagai Upaya Kemandirian Belajar Siswa" (2019) 1:1 *Seminar Nasional Pendidikan Dasar*.

¹⁵ Wicaksono, S. R. "Kajian Pembelajaran Online Berbasis Wiki di Lingkup Perguruan Tinggi" (2012) 6:1 *Journal of Education and Learning (EduLEarn)* 51.

¹⁶ Gibbons, W. *The Self-Directed Learning Hand book* (John Wiley and Sons, 2002).

¹⁷ Kuo, Y. C., Walker, A. E., SSchroder, K. E. E., & Belland, B. R. "Interaction Internet self-efficacy, and self-regulated learning as predictors of student satisfaction in online education courses" (2013) *The Internet and Higher Education*.

¹⁸ Sun, P. C., Tsai, R. J., Finger, G., Chen, Y. Y., & Yeh, D. "What drives a successful e-learning? An empirical investigation of the critical factors unfluencing learner satisfaction" (2008) *Computers and Educatio*.

¹⁹ Haugey, M. & Anderson, T. *Networking Learning: The Pedagogy of The Internet* (Montreal: McGraw-Hill, 1998)

lectures, partially provided on the web and partly face-to-face, and complementary functions, (3) Web Enhanced Course, namely lectures that are enhanced through the use of the web / internet. Learning occurs reciprocally between lecturers and students as well as learning centered on the web / internet”.

According to Basori, this online learning model utilizes technology, especially in helping lecturers and students, especially in managing learning activities.²⁰ According to Sriwihajriyah, this information technology can play a role as a medium that provides students and lecturers with learning resources and means for efficient evaluation of learning.²¹

In Szpunar's research, Moulton & Schacter, said that students do not really take online learning because they cannot focus compared to lectures if it is held face-to-face²². According to Khan, this can be overcome by holding online learning in a not too long time because students or students find it difficult to maintain their concentration if online teaching and learning activities are carried out for more than one hour.²³

According to Dabbagh and Ritland, there are three components in the online learning process, namely: (a) learning models, (b) instructional and learning strategies, (c) online learning media. These components form an interactive relationship, in which there is a learning model that is structured as a social process that can facilitate learning through the use of learning technology.

Teaching and learning activities using the online system also have several obstacles. Among them are not all children have the same facilities ownership as cell phones (not all students have cell phones); many have cellphones, but these phones have small RAM and memory so they cannot download heavy applications, have limited quota and an unstable network. The existence of these obstacles caused the lesson to be carried out poorly. The complaints from students regarding the online learning system are that there are too many tasks given and educators in teaching have not optimized the use of technology. Apart from that, parents also complained about several problems regarding online learning.

The importance of learning media in supporting the learning process is often overlooked by teachers for various reasons. Among them are limited time to prepare, difficult to find the right media, and also not enough funds.²⁴ The application of the use of video as a learning medium can increase student interest in learning and learning

²⁰ Basori, B. “Efektifitas Komunikasi Pembelajaran Online dengan Menggunakan Media E-Learning pada Perkuliahan Body Otomotif” (2017) 7:2 *Jurnal Ilmiah Pendidikan Teknik dan Kejuruan* 39.

²¹ Sriwihajriyah, N., Ruskan, E. L., & Ibrahim, A. “Sistem pembelajaran dengan e-learning untuk persiapan ujian nasional pada SMA Pusri Palembang” (2012) 4:1 *Jurnal Sistem Informasi (JSI)* 450.

²² Szpunar, K. K., Moulton, S. T., & Chacter, D. L. “Mind wandering and education: From the classroom to online learning” (2013) *Frontiers in Psychology*.

²³ Khan, Shahinshah Babar., & Jumani, Nabi Bux. “e-Learning versus Traditional Learning in Pakistan” (2012) 10:1 *Asian Journal of Distance Education* 28.

²⁴ Muttaqien, Zainal. *Pemanfaatan Blog sebagai Media dan Sumber Belajar Alternatif*. (Yogyakarta: UIN Sunan Kalijaga, 2011).

outcomes.²⁵ The use of video tutorials during the corona virus pandemic can complement online learning tools. Therefore, teachers can use video tutorials as discussion material, practical material, and increase student understanding of the material presented through online meetings.²⁶ This community service program aims to introduce the use of learning media that can be an alternative for teachers and can be implemented in the distance learning process.

Some schools do not have IT-based learning videos, one of which is SMA Negeri 1 Driyorejo Gresik. Based on the results of the initial survey conducted by the training team, according to the Principal of Driyorejo 1 Public High School, the teachers did not have the media in the form of instructional videos that were integrated with IT and during distance learning there were still many teachers who simply gave assignments to students in the form of question exercises, so that students feel bored when following the distance learning process.

In overcoming educational problems during a pandemic like this is to make a product that can improve the quality of learning, one of which is by making learning videos that are very interesting and fun so you don't feel bored when participating in distance learning.

III. IMPLEMENTATION

This activity is a solution to improve the quality of learning. In improving the quality of learning, it can be obtained from the availability of products in the form of learning videos that are very interesting and fun. The teacher can make the video using a simple but meaningful application. This service will be carried out in several stages, including:

A. Preparation Stage

In the preparation stage there are 2 steps. The first step is the community service team to prepare the necessary activity instruments; the second step, namely the team to coordinate with related parties for the implementation of activities.

B. Implementation Stage

At this stage, the activities carried out are working together with chemistry subject teachers to carry out the service as stated earlier.

C. Evaluation Stage

The evaluation stage is in the form of feedback from teacher representatives and related parties.

²⁵ Sipayung, Oriza., Darwin. "Pemanfaatan Video Sebagai Media Pembelajaran Untuk Meningkatkan Minat Belajar Dan Hasil Belajar Siswa Pada Mata Pelajaran Menggambar Teknik Dasar Kelas X Program Keahlian Konstruksi Batu Dan Beton SMK Negeri 2 Pematangsiantar" (2016) 2:1 Jurnal Education Building 87.

²⁶ Batubara, Hamdan Husein., Batubara, & Delila Sari. "Penggunaan Video Tutorial Untuk Mendukung Pembelajaran Daring Di Masa Pandemi Virus Corona" (2020) 5:2 Muallimuna:Jurnal Madrasah Ibtidaiyah 74.

This service activity is directly related to the education system at the high school level. Therefore, this activity involved teachers at Driyorejo Gresik Public High School 1. Evaluation of this service activity through reflection and input from participants at the end of the activity

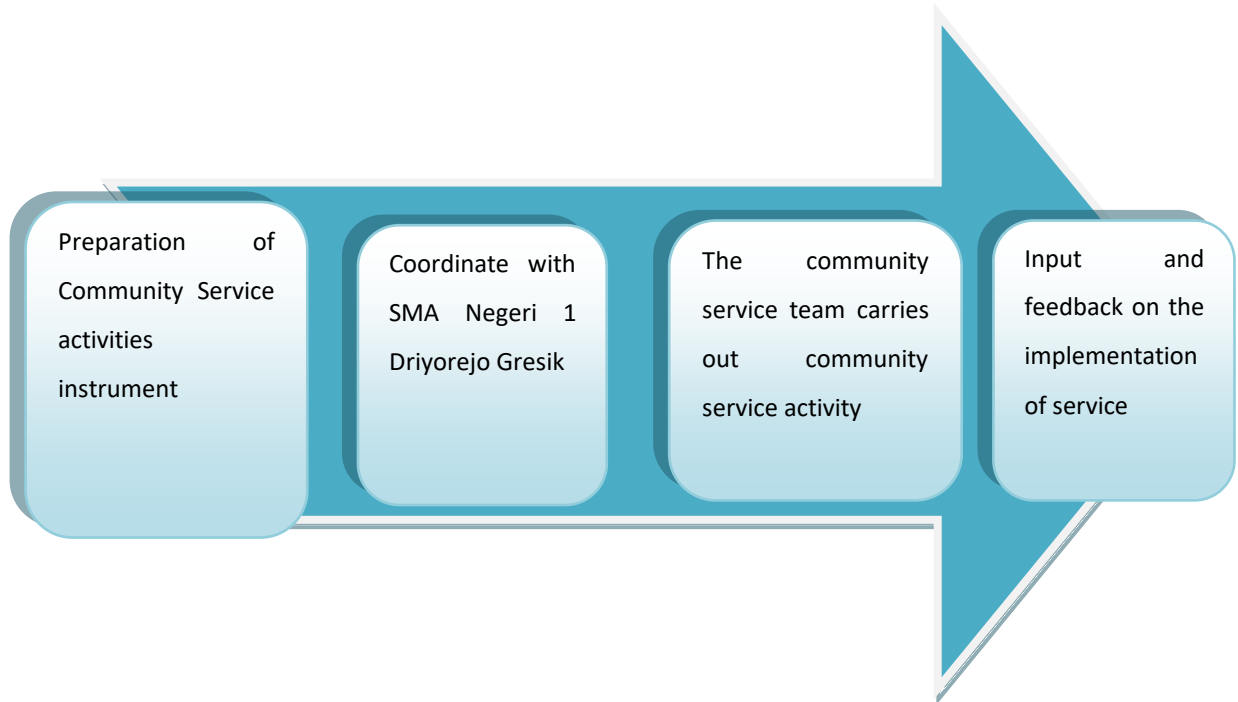


Figure 1. Service Activity Flow

The criteria used as indicators of target achievement in this activity are

Table 1. Training success indicators

No.	Component Assessed	Details	Indicator
1.	Learning Video	After training	More than 75 % participant can make learning video.
2.	Participant questionnaire	Response of training participants	More than 80 % participant said that the training is helpful

IV. RESULTS AND DISCUSSION

Community service activities in 2020 have been carried out online using the ZOOM application. The Community Service Team from the Department of Chemistry, Faculty of Mathematics and Natural Sciences, State University of Surabaya collaborated with chemistry teachers at SMAN 1 Driyorejo, Gresik Regency and pamphlets were also distributed through the Indonesian Chemistry Teachers Association group



Figure 2. PKM Activity Pamphlets

This phase of community service activities begins with the community service team compiling the necessary activity instruments, including a response questionnaire from the teacher as a training participant and the preparation of activity materials in the form of power points on how to make learning videos using the Kinemaster and LKPD applications as supplements to be able to apply the videos made them to Distance Learning; second, the team coordinated with related parties for the implementation of activities through the Whatsapp group, so it was agreed that online service activities would be carried out on Saturday, 19 September 2020 using the ZOOM application. Furthermore, the implementation stage is in collaboration with chemistry subject teachers to carry out the service as previously stated and was attended by 23 teachers from various regions. The activity went on smoothly and there were several questions from the participants related to the technicality of making videos using KINEMASTER starting from green backgrounds to suitable material taught through learning videos. In the picture below, you can see the participants who participated in the ZOOM.



Figure 2. Implementation of PKM

Obstacles to internet signals and schedule of activities that collided with the activities of the participants made 2 participants unable to participate in the activity at the time of the implementation. To overcome this, the PKM team provided recordings of virtual meeting activities and distributed them to participants via the Whatsapp group. The list of participants in this PKM activity can be seen in the Appendix. The farthest participant comes from MAN 2 Banjarmasin City.

The participants made a video with assistance through the Whatsapp group and the results were sent via the Google Drive link provided and connected by e-mail. There were 12 participants who successfully finished making the video with 10 participants getting the very good category and 2 participants getting the good category. The 13 participants were unable to solve with various obstacles, ranging from being busy at school that could not be left behind to retiring this year.

The response from the participants received very good responses and various inputs were obtained, such as: the coverage of participants was more expanded and could be held regularly. This PKM activity needs a lot of improvement, starting from the time of mentoring being more extended and the material provided can be given in stages followed by step-by-step practice for each participant.

V. CONCLUSION

Based on the results of this PKM activity, it can be concluded that this activity is useful for training teachers in making interesting learning videos so as not to make students feel bored during learning. This was indicated by the excellent response given by the participants in this activity.

VI. SUGGESTION

This community service activity should not stop only at the community service that is currently being carried out, but can be followed up with service to other communities.

This activity can be expanded and the number of participants increased and many other video making applications can be provided for training.

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