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Towards Smart School: Implementation of Learning Management System in Kemuning Village Primary School

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Abstrak—Demi mewujudkan Indonesia yang maju di masa depan, masyarakat desa perlu memiliki kemampuan dalam memiliki sumber daya manusia unggul yang mampu memanfaatkan teknologi informasi. UMN sebagai universitas yang memiliki tanggung jawab untuk melaksanakan Tridharma Perguruan Tinggi berperan penting dalam hal tersebut, telah bekerjasama dengan Desa Kemuning terutama dengan SDN Kemuning untuk pembuatan materi edukasi online yang dapat diakses melalui Learning Management System (LMS). Dari hasil observasi serta diskusi dengan para guru di SDN Kemuning ditetapkan mata pelajaran terkait sirkulasi darah untuk dibuat video pembelajaran digital. Dari pelaksanaan program ini, para siswa SDN Kemuning sudah mulai diperkenalkan dengan teknologi serta pembelajaran daring yang dapat diakses kapan saja dan di mana saja. hal ini juga mendukung proses literasi digital kepada para anak muda serta guru-guru.
Kata Kunci— Smart School; UMN; Online Learning; Distance Learning

Abstract—*In order to realise an advanced Indonesia in the future, rural communities need to have the ability to have superior human resources who are able to utilise information technology. UMN as a university that has the responsibility to carry out the Tridharma of Higher Education plays an important role in this regard, has collaborated with Kemuning Village, especially with Kemuning Elementary School to create online educational materials that can be accessed through the Learning Management System (LMS). From the results of observations and discussions with teachers at SDN Kemuning, subjects related to blood circulation were determined to be made into digital learning videos. From the implementation of this programme, the students of SDN Kemuning have begun to be introduced to technology and online learning that can be accessed anytime and anywhere. It also supports the process of digital literacy to young people as well as teachers.*
Keywords— *Smart School; UMN; Online Learning; Distance Learning*
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I. INTRODUCTION

Tangerang Regency, which has an area of 959.6 kilometres, has a population of 2,838,621 with a male population of 1,454,914 and a female population of 1,383,707 (Kusnandar, 2021). Tangerang Regency is bordered on the north by the Java Sea, on the south by Bogor Regency, on the west by Lebak Regency and Serang Regency, and on the east by Tangerang City. Tangerang Regency has 29 subdistricts, 28 urban villages and 246 villages. As an industrial centre, most of the people in Kabupaten Tangerang are employed in the industrial sector (Ambarwati & Sobari, 2020). In fact, the industrial sector absorbs more jobs than other sectors (Widyastoro et al., 2020).

Several villages and kelurahan in Kabupaten Tangerang have several potentials and problems, each of which is categorised as a developing village. Village potential is the social, economic and ecological resources available in the village that can be developed to improve the welfare of the village community (Windarto & Martini, 2021). In the context of rural economics, activating village potential requires a full understanding of the magnitude of the potential and its inherent characteristics. The problems of developing villages usually also lie in the economic sector, namely how to improve the welfare of the community.

One of them is Kemuning Village, which has an area of 392.820 Ha and has a population of 12,693 people with a composition of 6,211 male residents and 6,472 female residents. Based on the potential of human resources and MSMEs in Kemuning Village, there are still many things that need to be developed. From the aspect of human resources, Kemuning Village has village officials, youth organisations and community leaders who have worked together to become the driving force for village progress.

However, villagers have not been responsive in accepting changes, thus slowing down the development process in the village and the low level of education of residents can be seen from the average level of education of the population which is still at the junior high school (Sekolah Menengah Pertama) and senior high school (Sekolah Menengah Atas) level. Then from the aspect that the average resident already has a gadget, but it is still minimally utilised due to lack of knowledge and also signals or internet networks that are often problematic, thus hampering access to information. In terms of village business units, there is already a BUMDes but there is still minimal management. Then from another aspect, namely the Micro Business of Kamuning Village, which has potential businesses, namely the culinary business of regional specialities, bamboo woven handicrafts, agricultural businesses and livestock businesses and potential businesses, namely Cadas Lake tourism, but this tourism has not been managed properly, and is used for illegal fishing. Interest in agriculture can be seen from residents who still have rice fields and crop gardens as their livelihood. Therefore, Kamuning Village has the potential to develop

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agriculture. From this aspect of agriculture, appropriate technology can be developed that can support the agricultural sector, especially in the implementation process, so that later the village agricultural sector will get good quality output to meet domestic food needs.

In 2022, Universitas Multimedia Nusantara (UMN) took the initiative to conduct a Community Service Programme (PKM) in the form of implementing smart villages and improving the welfare of UMN-assisted village communities through science and technology, MSMEs and human resource potential, focusing on 5 villages, including Lengkong Kulon Village, Serdang Wetan Village, Kemuning Village, Kamuning Village and Curug Sangereng Village. Some of the scopes of PKM activities include conducting various trainings that have the potential to increase the capacity of the community and village officials, as well as digital literacy training needed for adolescents and productive age in the village.

UMN's Community Service Programme (PKM) is proposed to improve the welfare of UMN's fostered village communities through village potential in the field of MSMEs and develop knowledge in the field of science and technology. For Kamuning Village in particular, the community service programme focuses on developing human resources through education. Some of the partner problems that we have concluded are:

1. Lack of public awareness to develop the village.
2. The low level of education of the community.
3. Lack of community skills for the world of work/business around the village.
4. The use of gadgets has not been utilised productively and effectively by the community.

Therefore, the PKM carried out by UMN is to create a smart school at SDN Kemuning. Smart schools that incorporate digital content into their education programs offer a host of benefits to students, teachers, and the educational system as a whole (Hamzah et al., 2010; Riatun & Alvin, 2023; Taleb & Hassanzadeh, 2015). These benefits include access to a vast pool of information, interactive learning experiences, personalized learning, collaborative learning, cost-effectiveness, and eco-friendlyness. These benefits can enhance the learning experience for students and promote a more efficient and effective educational system (Castro & Tumibay, 2021; Pei & Wu, 2019).

II. METHOD

UMN's Community Service Programme (PKM) starts in June 2022 and runs until October 2022. This PKM applies Participatory Action Research (PAR) which involves collaboration

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between researchers and the community to identify, design, and implement actions that aim to solve problems or improve social conditions within the community (Cahyo & Devi, 2022; Kemmis, 2006; Santoso et al., 2022). The flow figure 1 of PKM activities carried out is as follows.

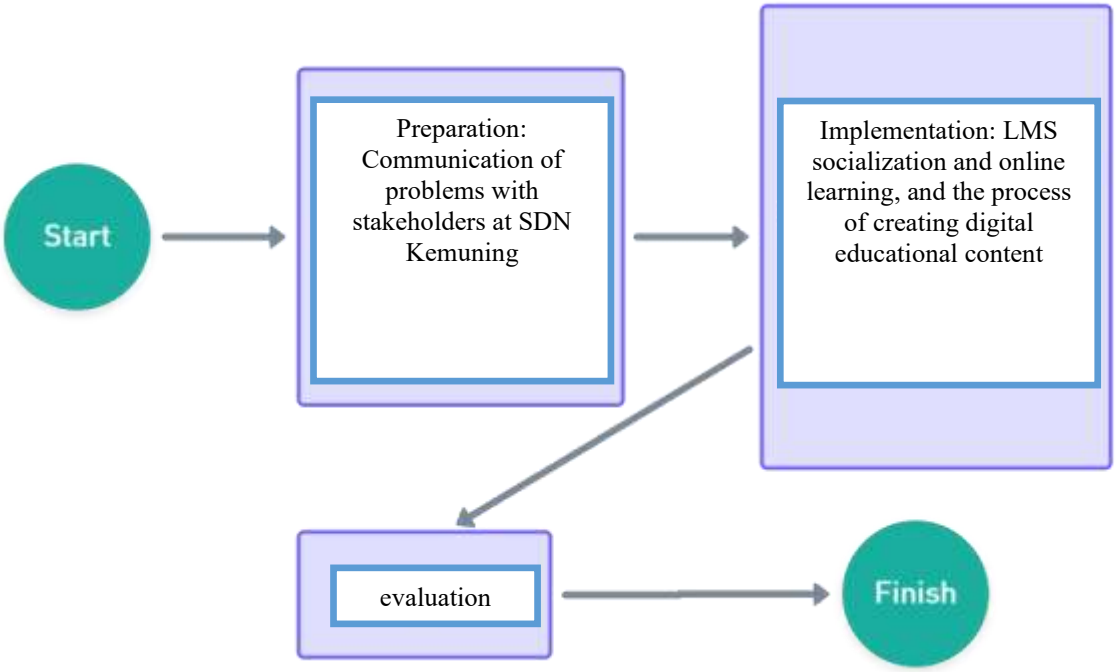

Figure 1. The Flow of Community Outreach Progamme

Preparation and Information Gathering

This stage will begin by coordinating with SDN Kemuning, in this case the Principal and several of his staff as well as the teachers who will be involved. The lecturer team visited the school and discussed how learning was carried out by the school during the pandemic. From the discussion, information was obtained about the learning methods used by using several online applications ranging from goggle meet to messaging applications such as WhatsApp.

The conclusion is that the school does not have a platform dedicated to online teaching methods (Alvin, 2023; Alvin & Dewi, 2022). Based on this information, we offered a learning platform that is specifically dedicated to online learning and teaching (Adedoyin & Soykan, 2023; Chaeruman, 2018). The school welcomed the idea and a planning and implementation mechanism was established.

Activity Implementation

The implementation of activities will begin in the PKM batch 2 submission period in 2022, where the lecturer team will conduct activities for 6 months with a duration of 340 minutes every

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2 weeks. At this stage, all activities from training and mentoring will involve Kamuning Elementary School and the UMN Bureau of Development and Learning (BPP) team.

The following are the stages of implementing PKM activities:

1) The lecturer team visits the school and coordinates with the school regarding the use of the LMS platform and the selection of material to be developed into digital modules.
2) The lecturer team socialised the use of the LMS to teachers and students offline and took place at SDN Kamuning accompanied by teachers who served as PICs for the activity.
3) The school selected and assigned a team of teachers who would fill in and create digital materials.
4) The teacher team conducts filming at UMN's BPP studio.
5) Digital content is produced and uploaded on the LMS by the UMN BPP team.
6) The content and platform are ready to be used for the online learning process.
7) Use of digital content for online learning in October 2022.

Evaluation

Evaluation is important in e-learning development content because it helps to ensure that the learning objectives are being met and the content is effective in facilitating learning. It can take many forms, such as assessments, quizzes, surveys, and feedback from learners. It also helps to identify areas where the content may need to be revised or improved.

III. RESULTS AND DISCUSSION

The first stage of the implementation was for the implementation team to visit SDN Kamuning to conduct initial initiation and discussion with the school management. At this stage, the team was met by the Principal, Mr Hadi, and the teachers who would be involved in the PKM, Mr Ilham and Mrs Hindun.

As a result of the discussion, Mr Hadi enthusiastically welcomed the programme and supported its implementation. Figure 2 is the Process of Discussing Problems. This support is given by assigning teachers who will be involved in the programme, and preparing infrastructure that supports online learning at SDN Kamuning.

The material to be developed was decided to be for grade V because, according to Mr Hadi, lower grades than grade V are still considered too early in terms of understanding, while grade VI will be concentrating on exams so grade V is the ideal class to implement online learning.

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Figure 2. Process of Discussing the Problem.

After it was decided that the class to be tested with online learning was class V, the next step was for the lecturer team to socialise the use of the LMS to teachers and students of class V offline at SDN Kamuning, accompanied by teachers who served as PICs for the activity.

Figure 3. Introduction of Online Learning Method to Elementary Students.

At the introduction event on figure 3, the children were quite enthusiastic in responding to the material provided by the implementation team and could understand the material provided well. The next step is the digital material production stage. In this stage, the assigned teachers filmed at UMN's Learning Development Bureau (BPP).

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Figure 4. Filming Process of Online Learning Materials.

The filming process on figure 4 is accompanied by the BPP team and the lecturer team. The filming process lasted approximately one day and went smoothly. After the shooting process, the content is then produced by the BPP team, while the BPP technical department creates a class and access for teachers and students of class V SDN Kamuning on the online learning platform (LMS). The platform on figure 5 can be accessed at the following site, https://elearning.umn.ac.id/s/SDNKemuning.

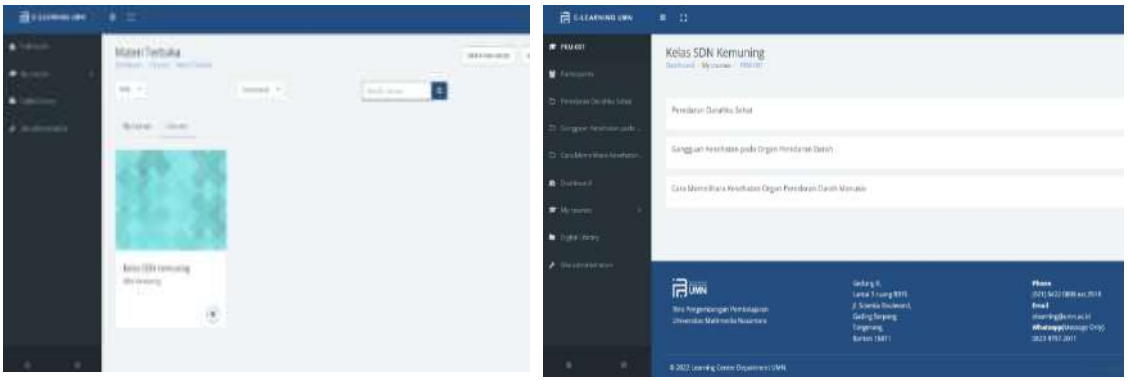

Figure 5. The Learning Management System (LMS)

Class view in the LMS on figure 6 containing three sections of material on blood circulation. It can be seen that 3 learning videos have been produced and uploaded.

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Figure 6. Digital Education Materials for SDN Kemuning.

Post-pandemic, the online learning process has become an alternative learning method in education, including at the primary school level. In its implementation, there are indeed advantages and disadvantages in carrying it out.

The implementation of online learning for elementary school students is not an easy matter (Dong et al., 2020). Various obstacles are encountered and can hinder the learning process to be less effective. The first obstacle is the difficulty of running and using learning applications. Because elementary school students are still at a very young age and still do not understand much about increasingly sophisticated technology, it makes it difficult for them to run applications used in the learning process (Fauzi & Sastra Khusuma, 2020; Utomo et al., 2021). In addition to students who don't understand how to do it, some teachers can also be fairly confused and even don't understand how to run learning applications at all.

The last education of guardians or parents of students who only reached elementary and junior high school, causing them to be unfamiliar with the applications used in the learning process (Ilmanto et al., 2021). This causes the guardians or parents to contact the teachers again for instructions on how to run the application (Ribeiro et al., 2021; Stevens & Borup, 2015).

Secondly, students sometimes do not understand and are confused about what they are learning. Because the learning process is only done online, it is limited for teachers to explain in more detail (Singh & Thurman, 2019). Especially in some lessons that are difficult and require more attention and guidance from teachers to students. The role of parents is needed in this home learning process, but again with the fact that some parents have limited knowledge (Liu et al., 2022). This makes it difficult for students to learn.

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From the obstacles found in the implementation of online learning in elementary schools, the author and a team of lecturers have provided guidance on the design, creation and use of an online learning platform (LMS) based on open source (Moddle) to be used and implemented at SDN Kemuning. The team has helped develop digital content and upload it through the LMS that can be accessed by teachers and students of grade V at SDN Kemuning. During the trial, students enthusiastically welcomed learning through the online platform.

The digital content created is also in the form of videos that use visual strategies that are quite interesting, so students can access repeatedly (Mujiono & Susilo, 2021; Smith, 2010). In general, teachers and students can use the content anytime anywhere, but there are obstacles such as connection and devices used. Some students have limitations in terms of devices and connections, as well as teachers. This will be our evaluation in the future, how to overcome this obstacle.

From the PKM evaluation, another limitations found was the lack of supporting infrastructure. Online learning has limitations because not all students at SDN Kemuning have access to smart phones or mobile devices. In addition, not all of them also have qualified internet access. These limitations may hinder students' participation and accessibility to the online learning experience. Without appropriate devices, students may not be able to follow lessons interactively, use online learning applications or platforms, or access learning materials fully. Therefore, additional efforts are needed to ensure that all students have equal opportunities in accessing online learning, including alternatives for students who do not have smartphones.

IV. CONCLUSION

In principle, the purpose of this PKM is to provide learning experiences using technological devices that are dedicated as online learning platforms to elementary school children and also provide knowledge for teachers on how to produce digital content to support online learning. The school and students of SDN Kamuning have given very positive support and reactions. The LMS platform and digital content have been accessed by teachers and students of SDN Kamuning in class V, and despite the limitations of both the devices and connections of the students and the school, the learning process with online platforms can be provided for elementary school children, of course, taking into account the devices and connections that are a mandatory part of online-based learning. However, it cannot be denied that there are limitations because not all students have smart phones or the internet to access the material.

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