



## **Technology Adaptation in the Covid-19 Period for Teachers at Muhammadiyah Elementary Schools Yogyakarta Teaching Campus Program Indonesia**

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### **Abstract**

One of the problems that arise in learning during the pandemic is the level of teacher readiness in adapting to technology. Teachers are required to carry out learning but often without adequate training and guidance or resources. In January 2022, cases of a new variant of Omicron broke out and several educational areas in Indonesia were again carried out online for red zone areas. Even though schools are reopening, institutions, teachers and students will face conditions that are much different from before the Covid-19 pandemic. The existence of these differences in conditions requires teachers to be more literate/adapted to technological developments in order to package interesting material. The purpose of this study is to analyze the method of technology adaptation for teachers in Yogyakarta elementary schools who are the object of the campus teaching program. With the analysis of this method, teaching campus students who carry out activities, one of which is technology adaptation, have the provision in implementing it in Muhammadiyah Yogyakarta elementary schools. This type of research is a qualitative research with the object of research is six elementary schools, campus objects teach the Indonesian Ministry of Education program in Yogyakarta Indonesia. The results showed that the process of adapting the technology of elementary school teachers with three stages, namely introduction, utilization and evaluation. The introduction and utilization is carried out by the teacher guided by school policies. While the evaluation is carried out by teachers and principals to get follow-up on further learning. Technology adaptation method for Muhammadiyah elementary schools teaching campus programs in Yogyakarta.

**Keywords:** Technology adaptation, Covid-19 period, Elementary school teacher, Campus teaching program

### **INTRODUCTION**

The Covid-19 pandemic has hit Indonesia and has brought many changes in every aspect of life, especially for the world of education. Education is one of the methods of a country to create a brilliant age that can work on the quality of a country. Through education, students get direction, educate, and then prepare for what is to come. Currently, education has entered the digital era, where all learning is carried out forward. Teachers make various advanced-based school administrations, starting from making assessments, learning media and other administration.

This technology adaptation is very necessary, especially during the pandemic considering everything from finding out how school administration has become online-based (P. Wahyono, H. Husamah, and A. Budi, 2020) and teachers are required to carry out learning but often without adequate training and guidance or resources (A. De Giusti, 2020).

One of the problems that arise in learning during the pandemic is the level of teacher readiness in adapting to technology that does not yet have the option to implement online-based learning. Because, there are material limitations, for example there are still many students who do not have cell phones or laptops. In addition, teachers are not maximal in understanding how to deliver material online (R. Adellia and I. P. Himawati, 2021). Technology adaptation in education has not been fully dominated, there are still many teachers and students who fail to see how to take advantage of existing innovations. All of this is caused by several things, including: unbalanced networks, costs associated with utilizing innovations, the difficulty of certain individuals in seeing how to utilize innovations appropriately and accurately. These challenges make it difficult for some teachers and students to adapt technology (T. H. Nurgiansah, 2020).

In mid-2021, education in Indonesia will again be carried out offline for the green or yellow zone areas (Directorate of Community Education and Special Education, Jakarta, 2021) (Directorate of Elementary Schools, Jakarta, 2021). Even though schools are reopening, institutions, teachers and students will face conditions that are much different from before the Covid-19 pandemic (A. Aristovnik, D. Keržič, D. Ravšelj, N. Tomaževič, and L. Umek, 2020). The existence of these different conditions requires teachers to be more literate/adapted to technological developments in order to package interesting material (N. Widyarningsih, M. D. Komalasari, 2021) and make it easier for students who are still in the red zone to get lessons (Husaini, 2021), but in the program technology adaptation for teachers on campus teaching locations is still inadequate, so interventions need to be given to improve technology adaptation competencies.

The post-pandemic transition period does not mean that it has been separated from the new culture that exists in society, but it is a period in which society, especially the world of education, must adapt more to conditions and technology to carry out education more efficiently and effectively. The use of educational technology in this period and beyond is needed, for that teachers must be more adaptive to technological developments so that learning is varied by applying digital pedagogy (Hamidi, 2020). In addition, students are used to online learning and using technology (N. Rulandari, 2020), so that changes in learning without digital pedagogy result in emotional disturbances, boredom, and stress in students (A. Aristovnik, D. Keržič, D. . Ravšelj, N. Tomaževič, and L. Umek, 2020). Distance learning leaves teachers with less open doors to hone their relational and administrative skills. The existence of a teaching campus program requires the availability of various groups, both from the school, officials, and actual students (T. Andriani, 2016). (D. Arina, E. S. Mujiwati, and L. Kurnia, 2020). The progress of the world of education will continue to be faced with various problems, one of the weaknesses of the education and learning process. (H. Rigianti, 2020)

The purpose of campus teaching is not only to improve students' abilities but also to assist teachers in improving their technological adaptability (M. F. A. Tengku, 2021). The presence of students at school is expected to remind the effectiveness of learning (R. N. Anwar, 2021). (T. Wulandari, T. W. Agrita, and K. Hidayatullah, 2020) In the transition period it is necessary to improve adaptation to technology, especially the many obstacles experienced by teachers such as teachers providing interesting learning materials, limited information and funds for the provision of Health protocols (N. M. Arini and I. B. A. A. Wiguna, 2021) (F. D. S. Sumantyo, 2020).

Several studies related to this research, including Ahmed et al (2020) revealed that in order to maintain the educational process, teachers must innovate and adapt to learning technology (S. Ahmed, M. Shehata, and M. Hassani, 2020). Ndasung (2021) the learning process must be adapted to local conditions (D. J. Ndasung, 2021), Arini and Wiguna (2021) reveal adaptation and use of technology as an answer to the obstacles to providing health protocol equipment in schools (N. M. Arini and I. B. A. A. Wiguna, 2021), Risca Dwiaryanti and Fadali Rahman said that the use of technology such as e-learning is not as simple as expected (R. Dwiaryanti and F. Rahman, 2021).

Adapting technology to one of the MBKM programs (merdeka learning campus independence) means opening the door for teachers, lecturers and students to develop themselves through practice and imagination beyond reach. The Teaching Campus Program aims to empower students to get directly involved in the field with different elementary school conditions throughout Indonesia (Kemendikbud RI, 2020). Distance learning in schools is urgently needed by strategic issues, and there is a danger of losing a strong learning process (A. Malyana, 2020). The implementation of web-based learning is one of the learning models carried out during the pandemic, with the reason that the learning strategy guidelines during the pandemic are to focus on the welfare and safety of students, instructors, training staff, families, and the community. As a rule, to fulfill instructive administration during a pandemic (A. Sadikin and A. Hamidah, 2020).

This research is expected to produce an analysis of technology adaptation methods for elementary school teachers in campus teaching programs in Yogyakarta. The challenges experienced in the learning process during the pandemic are the lack of adaptability of teachers to technology, therefore, the study also aims to describe how important it is for a teacher to keep adapting to technology in the post-Covid-19 transition period and the role of students from teaching campuses to improve technology adaptation.

## METHODE

This type of research on technology adaptation in Muhammadiyah schools in Yogyakarta is a qualitative research. This study aims to analyze the technology adaptation model used by schools in Yogyakarta as the object of the campus teaching program organized by the Ministry of Education and Culture of the Republic of Indonesia. One of the campus teaching programs is technology adaptation. The approach used in this study is a descriptive analytical approach which aims to analyze and explain systematically the facts about technology adaptation in six Muhammadiyah elementary schools in Yogyakarta. The descriptive approach also aims to get an in-depth description of what models schools can use in adapting technology. Data collection techniques with interviews, observation and documentation. While the data analysis carried out were initial data analysis, field data analysis and data analysis after data collection of the technology adaptation model used at the school campus teaching object in Yogyakarta in the MBKM program (independent learning campus independence). (Directorate of Primary Schools, Jakarta, 2021 ) (Direktorat Sekolah Dasar, Jakarta, 2021 )

## RESULTS AND DISCUSSION

### Technology adaptation for Muhammadiyah elementary school teachers in Yogyakarta

Adaptation is actually not only done because of the pandemic, the progress that occurs both in the field of technology that encourages change must get a reaction from the teacher to always keep abreast of the times so that it is not out of date. Technological adaptation requires a way for teachers to adapt easily because not everyone has the ease of adapting. So this research will reveal how elementary school teachers adapt technology in learning. To be able to obtain this data, below is an interview guide for principals and elementary school teachers in Yogyakarta whose schools are appointed by the Ministry of Education and Culture as the object schools of the campus teaching program.

**Table 1.** the Interview Grids

No	Questions
1	How is the process of adapting technology carried out in schools during the covid-19 pandemic?
2	Does the condition of school facilities and infrastructure support the adaptation process of teachers in learning??
3	What technology-based media are used in online learning?
4	What are the obstacles during the online learning process using technology media??
5	How is the learning process by utilizing technology-based media carried out in face-to-face learning in class??
6	What technology-based media are used in classroom learning?
7	What are the obstacles during learning by using technology media in the classroom??

Based on the results of interviews with six principals, there are three stages for teachers in adapting technology, namely the introduction stage, the utilization stage and the evaluation

stage. At the introduction stage by conducting simple training on how to use learning applications. Learning applications used in learning at Muhammadiyah elementary schools in Yogyakarta include:

Applications for learning muhammadiyah elementary school campus programs teaching in yogyakarta



**Figure 1.** Learning applications used in Muhammadiyah Yogyakarta elementary schools

Based on the table above, the most widely used learning applications are the Ministry of Education and Culture's study house, Mentimeter, our class, the chat site, google classroom, quizizz, your school, kipin school, I can do and smart class. Among these applications, the most frequently used are Google Classroom and the Ministry of Education and Culture's learning house.

The utilization stage is by applying it to the learning process in Yogyakarta elementary schools. The number of teachers from six schools is 72 elementary school teachers who use learning applications in the teaching and learning process. The obvious obstacle in using technology is the attitude of the teacher who must be open minded (the results of the interview with the principal of the K2 SD school) to be able to do learning with technology. If this attitude does not work, then follow-up from the principal is needed. An open-minded attitude is the key to the convenience for teachers in adapting technology in learning. An open attitude to learning changes will facilitate the learning process in the classroom, but on the contrary if the teacher's attitude is anti-change and adapting to technology in learning becomes one of the constraining factors in online learning (results of an interview with the principal of the SD d2 school).

The ability of teachers who respond well to any changes will also have implications for changing instructive teaching methods from 2.0 to 3.0 (H. Putria, H. Luthfi, and A. . Din, 2020) There are 4 factors that determine whether or not distance learning is achieved or challenging, namely the skills or capacity of educators, students' ability to learn and understand learning materials, accessibility of gadgets, accessibility of internet networks. Some that teachers can do are First, online learning. Teachers create virtual classes using access to the Ministry of Education and Culture's Learning House on the site: [studi.kemdikbud.go.id](http://studi.kemdikbud.go.id) or other learning portals, both free and paid (Y. Pujilestari, 2020). Second, offline strategy (K. D. Setyaningsih, 2020). Third, manual task strategy. (A. Asmuni, 2020). Fourth, reclassification (S. Utami and P. Utami, 2020). Fifth, because online learning is student-oriented, students are required to be more imaginative (U. H. Salsabila, M. N. Sofia, H. P. Seviarica, and M. N. Hikmah, 2020). The digital era requires a teacher to adapt technology to maximize the learning process for the better (A. Idrus and Apdelmi, 2017) (Mastura and R. Santaria, 2020). Learning in the digital era requires continuous development and creativity (Y. D. Hermawan, 2020). Assuming this happens, liberating and characterful learning (A. G. Prawiyogi, A. Purwanugraha, G. Fakhry, and M. Firmansyah, 2020). This liberating and characterized learning becomes the mission of the independent campus program organized by the Ministry of Education and Culture.

Utilization of technology with learning applications is also used in face-to-face learning conditions as explained by the principal of the K1 SDM school. With the technology adaptation program in the Ministry of Education and Culture's campus teaching program, this learning technology will continue to be used in face-to-face learning activities. To obtain observational data on the

implementation of learning by utilizing technology, it can be done with the following observation guidelines.

**Table 2.** the Observation Grids

Program	Indicator	Rated aspect	Yes	No
Program 1	Introduction to Technology for KBM	<ul style="list-style-type: none"> <li>- The teacher pays attention to the introduced learning technology</li> <li>- The teacher follows the instructions for operating the KBM learning technology</li> <li>- Students are not sleepy during KBM</li> <li>- The teacher asks/looks for information when having difficulty with the media during KBM</li> </ul>		
Program 2	Utilization of Technology in KBM	<ul style="list-style-type: none"> <li>- Teachers use online learning technology during KBM</li> <li>- Teachers are able to operate online learning technology during KBM</li> <li>- Students follow the teacher's instructions well when learning with learning technology</li> <li>- Teachers do good learning with online media.</li> </ul>		
Program 3	Evaluation	<ul style="list-style-type: none"> <li>- The teacher conducts learning reflection</li> <li>- Teachers measure learning outcomes</li> <li>- The teacher does follow-up</li> <li>- The principal analyzes the learning evaluation</li> <li>- The principal takes follow-up actions based on the evaluation</li> </ul>		

The use of online learning technology is used by teachers after the introduction process in the form of simple training carried out by the school (observation of s1 s1, k2). The indicator of utilization or ability to adapt to technology is the ability of teachers to operate application-based learning tools and students to provide feedback in learning (observation of d1 sb, k1 sb). Online-based learning ensures smooth online learning in educating children's psychology, mentality and information (T. Z. Wardhani and H. Krisnani, 2020). Participation between parents, teachers and students is also important. In the current state, learning conditions require cooperative cooperation between teachers, parents and students. The current learning system is a combination of teachers, students and parents. Collaboration, complementing each other and contributing according to their respective limits, capacities, and areas (A. R. Mansyur, 2020). As the main subject in the success of the learning process, a teacher must be more professional. Professional teachers in the digital era in addition to having pedagogical, personal and social competencies must also have the ability to use technology in learning (A. Hilir, 2021). Up to date teachers regarding technological developments play an important role in creating graduate competencies that are in accordance with market needs (M. Japar, 2018). On the other hand, the pandemic that demands distance learning is very supportive to realize the characteristics of learning in the 21st century. The characteristics of 21st century learning in the classroom are finding out, formulating problems, asking questions and thinking analytically. To make it happen, it is necessary for teachers who are adaptive to technology and education that are novel in nature.

The evaluation program was carried out by the principal of the six teaching campus schools in Yogyakarta. Four schools carried out the evaluation, namely HR K1, HR K2, HR D2 and HR S2 (Observation). The evaluation is carried out with a comprehensive evaluation meeting of the campus teaching program. In this evaluation, obstacles and follow-up programs will be found. The evaluation process is important because it will determine or make improvements in subsequent learning. With the above evaluation data obtained documentation of the types of learning applications used in the learning process. The utilization of these applications can be seen in table 3:

**Table 3.** the use of learning applications

Subjects	Schools who responded well	
	Without Visual-audio Media	With Visual-audio Media
SDM S1	2	3
SDM K1	1	2
SDM D1	1	3
SDM K2	2	3
SDM D2	1	2
SDM S2	2	1
Total:	9	14

From the data from the six schools above, the use of applications that are visual and audio is more dominant and in demand in the learning process at Muhammadiyah elementary schools, Yogyakarta. So that previously centered learning becomes more flexible learning both in space and time, allowing students to learn and discuss with friends from all over the world (M. Japar, 2018). Looking at the existing conditions, a teacher should have adequate competence, especially in adapting, understanding and using the field of educational technology, so as to produce skills in the 21st century: life and career skills, learning and innovation skills, and information media and technology skills (A . Downstream, 2021). The above skills are provisions to advance education in elementary schools which of course support campus teaching programs in the field of technological adaptation.

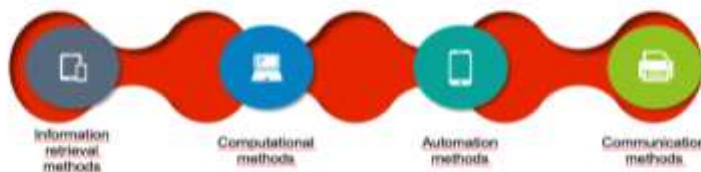
The efforts of educators to develop their competence in technology through driving organizations are carried out by the Ministry of Education and Culture as a form of support to improve the quality of teachers and principals (S. GTK, 2021). One of the programs is to prepare learning technology tools (A. Nabila, M. S. Dewi, and R. Hadi, 2021). Training is one of the incentives for teachers to improve their competence (Y. Sumarni, 2021). One of the steps taken by the government is the existence of a teaching campus program, one of which is to help teachers adapt to technology.

**Analysis of Technology Adaptation Methods for Teaching Campus Programs in Yogyakarta**

The campus teaching program is part of the program launched by the Ministry of Education and Culture of the Republic of Indonesia, which is part of the Independent Campus. The existence of a teaching campus program as an effort to prepare students to face changes in social, cultural, world of work and rapid technological advances (Direktorat Jenderal Pendidikan Tinggi Kemdikbud RI, 2020 ), Or in other words, efforts to prepare student competencies in accordance with the times. This program aims to develop student potential by helping teachers and principals at the elementary and junior high school levels in carrying out the learning process in the midst of a pandemic (Kemdikbud, Jakarta, 2021) (D. A. Rosita and R. Damayanti, 2021). Through the campus teaching program, students are free to choose courses outside the study program and change the definition of semester credit units (E. Simatupang and I. Yuhertiana, 2021). Every higher education institution, especially at the study program level, is required to develop a curriculum to facilitate students to gain experience and knowledge outside of core subjects (M. Wilestari, 2021). The technology adaptation process carried out by students under the guidance of lecturers appointed by the Ministry of Education and Culture is carried out for 6 months which adjusts to the learning program at their respective schools (interviews k1, d2).

The technology adaptation method in the campus program teaches with information search methods, computational methods, automation methods and communication methods (interviews s1, kI, d1, k2, d2, s2). The information search method is carried out by the principal who at the same time takes the policy in the online learning process that utilizes application technology. Information searches are also carried out by teachers if they experience problems in the learning process. This method is used by Muhammadiyah schools as an object for teaching the Ministry of Education and Culture.

Technology adaptation method for muhammadiyah elementary school teachers



**Figure 2.** Technology adaptation method

Computing methods or speed in using learning applications provide awareness to teachers that learning can be done anytime and anywhere. In addition, the learning application also does not

eliminate interaction or feedback from students during learning. This automation method with the use of learning applications provides awareness for teachers that learning in elementary schools can reach routine activities in learning that are flexible and easy. While the communication method used in learning using application technology provides new experiences and awareness that learning can be done without time and place limits. The four methods above can be applied by students implementing campus programs, which are expected to be able to play a role in helping teachers and schools in distance and face-to-face learning, especially literacy and numeracy learning. (kemdikbud, 2021).

## CONCLUSION

The process of adapting technology for elementary school teachers with three stages, namely introduction, utilization and evaluation. The introduction and utilization is carried out by the teacher guided by school policies. While the evaluation is carried out by teachers and principals to get follow-up on further learning. Technology adaptation methods for Muhammadiyah elementary schools teaching campus programs in Yogyakarta are information search methods, computational methods, automation methods and communication methods. These four methods can increase the awareness of teachers and schools that with the skills they have in using technology in elementary schools, they can improve the quality of learning that is carried out both online and face-to-face.

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