

## INDONESIAN EDUCATION DIGITALIZATION COLLABORATION PROGRAM FOR MADRASAH THROUGH THE WORLD BANK AND THE MINISTRY OF RELIGION

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### ABSTRACT

The Indonesian Education Digitalization Collaboration Program for Madrasahs, supported by the World Bank and the Ministry of Religious Affairs, aims to improve the quality of education through the use of digital technology in Madrasah. The program identifies challenges in education transformation, such as unequal access to technology in remote areas, lack of training for educators, and inadequate infrastructure. This research uses a qualitative method with a case study approach that involves in-depth interviews with teachers, students, and related parties in Madrasah, which is the target of the program. Data collection is carried out through direct observation, interviews, and analysis of documents related to the digitization program. The results of the study show that although this program has succeeded in introducing technology in learning, there are significant obstacles, such as the limitation of the internet network in some areas, as well as resistance to change among teachers who are not used to digital learning methods. In conclusion, although digitalization of education can improve the quality of learning in madrasahs, there is a need for improvements in infrastructure aspects, continuous training for educators, and counseling to overcome resistance to change. This program needs to be supported by more strategic and comprehensive policies to ensure its sustainability.

### ABSTRAK

Program Kolaborasi Digitalisasi Pendidikan Indonesia untuk Madrasah yang didukung oleh Bank Dunia dan Kementerian Agama bertujuan untuk meningkatkan kualitas pendidikan melalui pemanfaatan teknologi digital di madrasah. Program ini mengidentifikasi tantangan dalam transformasi pendidikan,

Kata Kunci:  
Digitalisasi;  
Pendidikan;  
Kolaborasi;

seperti ketimpangan akses terhadap teknologi di daerah terpencil, kurangnya pelatihan bagi tenaga pendidik, serta infrastruktur yang belum memadai. Penelitian ini menggunakan metode kualitatif dengan pendekatan studi kasus yang melibatkan wawancara mendalam dengan guru, siswa, dan pihak terkait di madrasah yang menjadi sasaran program. Pengumpulan data dilakukan melalui observasi langsung, wawancara, dan analisis dokumen terkait program digitalisasi. Hasil penelitian menunjukkan bahwa meskipun program ini berhasil memperkenalkan teknologi dalam pembelajaran, terdapat kendala signifikan seperti keterbatasan jaringan internet di beberapa daerah, serta resistensi terhadap perubahan di kalangan pengajar yang belum terbiasa dengan metode pembelajaran digital. Kesimpulannya, meskipun digitalisasi pendidikan dapat meningkatkan kualitas pembelajaran di madrasah, perlu adanya perbaikan pada aspek infrastruktur, pelatihan berkelanjutan bagi pendidik, serta penyuluhan untuk mengatasi resistensi terhadap perubahan. Program ini perlu didukung dengan kebijakan yang lebih strategis dan menyeluruh untuk memastikan keberlanjutannya.



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## INTRODUCTION

Digitalization of education in Indonesia, especially in Madrasah, is a strategic step taken to improve the quality of teaching and answer the challenges of globalization and the development of information technology. The cooperation program between the World Bank and the Ministry of Religious Affairs in the digitalization of education in Madrasah aims to strengthen educational infrastructure, improve teacher competence, and facilitate better student learning access. In this context, it is essential to understand that digitalization is not just the application of technology but also includes a paradigm shift in the learning process and education management.<sup>1</sup>

The current issues relevant to the digitalization of education in Madrasah include the challenges Madrasah is facing in adopting digital technology to improve the quality of education. The era of digitalization brings a paradigm shift that affects the education system, including Madrasah, which is often marginalized in discussions about educational innovation. Previous research has shown that Madrasah need to adapt to technological developments. Where online learning is the leading solution.

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<sup>1</sup> Arini Indah Nihayaty and Dimas Rifky Fanani, "Digitalisasi Madrasah: Langkah Kalangan Muslim Di Era Media Baru," *Nusantara: Indonesian Journal of Islamic Studies* 2, no. 1 (January 1, 2022): 29–40, <https://doi.org/10.54471/nusantara.v2i1.11>.

Research shows that online learning can improve educational accessibility but also creates gaps in technology readiness and digital competencies among teachers and students.<sup>2</sup> In addition, previous studies have shown that Madrasah need to adapt to technological developments to remain relevant and effective in educating the younger generation.<sup>3</sup> Therefore, this study focuses on how this cooperation program can overcome existing problems and improve the quality of education in Madrasah.

Recent studies show that digitalizing education increases transparency and accountability and accelerates stakeholders' access to information.<sup>4</sup> However, despite the progress, there are still obstacles to implementing digitalization, such as the lack of infrastructure and training for educators.<sup>5</sup> Research by Irawan also highlights the importance of developing an official madrasah website as a first step in digitalization. However, many Madrasah do not have adequate resources to carry it out.<sup>6</sup> In addition, research by Hidayati shows that despite digitalization initiatives, many Madrasah still rely on traditional methods in the learning process.

The gap between the latest studies and the empirical and theoretical aspects of the digitalization of madrasah education lies in the lack of understanding of the factors that hinder the success of digitalization implementation programs. While some studies address the benefits of digitalization, few have comprehensively explored the challenges and strategies.<sup>7</sup> In addition, existing research tends to focus on technical aspects. At the same time, social and cultural elements that affect the acceptance of technology among Madrasah have not been widely discussed and are still very limited.<sup>8</sup>

The problems faced in the digitalization of education in Madrasah include the lack of technological infrastructure, low digital competence of teachers, and

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<sup>2</sup> Muhammad Naufan Rizqullah, Subhan Ajrin Sudirman, and Fuad Alfayed, "Madrasah Digital: Literasi Digital Dan Sains Bagi Guru Dan Murid MAN 3 Tanah Datar," *Syntax Literate ; Jurnal Ilmiah Indonesia* 9, no. 4 (April 16, 2024): 2322–34, <https://doi.org/10.36418/syntax-literate.v9i4.15382>.

<sup>3</sup> M. Arifky Pratama, Yuliyus Penpanani, and Nanang Suherli, "Implementasi Aplikasi Raport Digital Madrasah (RDM) Dalam Penilaian Hasil Belajar Siswa," *Jurnal Media Dan Teknologi Pendidikan* 2, no. 2 (December 15, 2022): 91–97, <https://doi.org/10.23887/jmt.v2i2.49381>.

<sup>4</sup> (Nur and Hanif, 2024)

<sup>5</sup> Nihayaty and Fanani, "Digitalisasi Madrasah: Langkah Kalangan Muslim Di Era Media Baru."

<sup>6</sup> Edi Irawan, "Digitalisasi Madrasah Di Era Revolusi Industri 4.0: Refleksi Kegiatan Pengabdian Kepada Masyarakat Di Kabupaten Ponorogo," *E-Dimas: Jurnal Pengabdian Kepada Masyarakat* 10, no. 2 (September 30, 2019): 160, <https://doi.org/10.26877/e-dimas.v10i2.3229>.

<sup>7</sup> Syaeful Arif and Dian Hidayati, "Analisis Kebijakan Pendidikan Dalam Perspektif Madrasah," *Syntax Idea* 6, no. 3 (March 22, 2024): 1138–48, <https://doi.org/10.46799/syntax-idea.v6i3.3057>; Hairullah Hairullah, "Reformasi Pendidikan Islam Di Madrasah Dan Relevansinya Dalam Pendidikan Abad 21 : Peluang Dan Tantangan," *Jurnal Ilmiah Widya Borneo* 6, no. 1 (July 10, 2023): 19–28, <https://doi.org/10.56266/widyaborneo.v6i1.164>.

<sup>8</sup> Egi Prayogi Pangeresa, Eka Putra, and Andri Nurjaman, "Transformasi Lembaga Pendidikan Islam: Kajian Perkembangan Madrasah Dari Masa Ke Masa Di Indonesia," *Abdurrauf Journal of Islamic Studies (ARJIS)* 2, no. 2 (June 20, 2024): 126–44, <https://doi.org/10.58824/arjis.v2i2.76>.

access gaps for students in remote areas.<sup>9</sup> This phenomenon shows a gap between ideal conditions, where every student has direct access to quality education, but empirical conditions show an inequality in access and quality of education. Based on the gap analysis, the research questions asked are: How is the implementation of digitalization in Madrasah, and what strategies can be applied?" This research explores how cooperation programs can bridge the gap with precise, innovative, and sustainable solutions.

In addition, it will analyze the impact and effectiveness of the program in improving the quality of education in Madrasah, identify the challenges faced in its implementation, and develop strategic recommendations to increase the effectiveness of the digitalization program. The novelty of this research lies in a holistic approach that combines technical, social, and cultural aspects to understand the dynamics of Madrasah. Thus, it is hoped that this research will make a real contribution to developing digital learning programs in Indonesia, especially in Madrasah.

## METHODS

With a descriptive qualitative method, this research analyzes the implementation of the education digitalization cooperation program, focusing on the experiences, views, and perceptions of stakeholders, such as teachers, students, madrasah managers, the Ministry of Religious Affairs, and the World Bank. Primary data was obtained through interviews, while secondary data was obtained from official documents, program reports, and related literature. Data collection techniques are analyzed using coding and thematic analysis. This method was chosen because it can dig up complex information that quantitative methods cannot reach, so it is expected to provide in-depth insights related to the effectiveness, challenges, and opportunities of education digitalization programs in Madrasah.

## RESULT AND DISCUSSION

Findings related to Indonesia's education digitalization cooperation program for Madrasah involving the World Bank and the Ministry of Religious Affairs. The main focus of this analysis is to answer the research questions regarding the impact and effectiveness of the program in improving the quality of education in Madrasah as follows:

### **Indonesian Education Digitalization Cooperation Program for Madrasah through the World Bank and the Ministry of Religion of the Republic of Indonesia**

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<sup>9</sup> Surawan Surawan, Mazrur Mazrur, and Rodhatul Jennah, "Pendampingan Administrasi Sekolah Berbasis Digital Di SMP Muhammadiyah Palangka Raya," *PengabdianMu: Jurnal Ilmiah Pengabdian Kepada Masyarakat* 8, no. 4 (July 31, 2023): 606–13, <https://doi.org/10.33084/pengabdianmu.v8i4.5032>.

Indonesia's cooperation with the World Bank regarding education digitalization is significantly different from that of other countries. Some of these key differences are as follows:

**Focus on long-term development.**

The World Bank is leading in supporting long-term economic development and poverty reduction, including education. In addition to providing funding, the World Bank also provides technical support and in-depth analysis to ensure the sustainability of education projects, including the digitalization of education in Madrasah in Indonesia. The World Bank's focus is on building the capacity of educational institutions, improving the quality of teaching, and providing wider access to academic resources to create an education system that is adaptive to changes and future needs.

They also conduct comprehensive analyses to understand local challenges so that they can provide appropriate recommendations to improve the effectiveness of the program, such as curriculum development, teacher training, and improvement of educational infrastructure. Unlike other countries that offer more humanitarian or emergency assistance, which is temporary, the World Bank invests in long-term sustainable development, ensuring that future generations have access to quality education and supporting economic growth.

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more humanitarian or emergency assistance, which is temporary, the World Bank invests in long-term sustainable development, ensuring that future generations have access to quality education and supporting economic growth.

However, the challenges facing other countries are limited networks and adequate resources, which can be overcome with support from the World Bank, including providing access to digital platforms, hardware, and training for educators. To succeed, the best practices must be tailored to the local Indonesian context, considering the culture, educational policies, and specific needs of students and teachers. Therefore, collaboration between the Indonesian government, the World Bank, and academic institutions is essential to ensure the success of this initiative and improve the quality of education in Indonesia.

### **Ongoing Financial Support**

The World Bank provides more sustainable financial support through long-term loans and grants, which allow Indonesia to plan and execute significant projects without undue financial burden. In contrast, other countries can only provide financial assistance through short-term loans or one-time aid.<sup>10</sup>

### **Financial and Technical Support**

The World Bank provides critical financial and technical support for large-scale projects such as the digitalization of education. With this support, Indonesia can gain access to funds and expertise to implement complex and long-term programs.

### **Equal Access to Education**

Through this collaboration, Indonesia and the World Bank (World Bank) strive to create a more inclusive education system (involving all people from various walks of life without any gaps), adaptive (easy to adapt), responsive (quick to respond) to the challenges of the digital era as well as ensuring that all Indonesian children have the same opportunity to get quality education.

### **Technology used to carry out the education digitalization cooperation program**

"The main principle is because I am not an IT person, I don't know the specifications in detail. But the main principle is one cheap technology for sure. If it is cheap, then he can guarantee its sustainability. So, what we are thinking about now is that as long as this project exists, the funding is from the loan, it is quite multiplied, and it is relatively safe from revision interference. The revision is a budget diversion because the loan cannot be revised to the extreme. After all, the process is long. So the principle is cheap technology; it must ensure its sustainability; yes, the point is that it is friendly to the end user, and that can be the last thing if it is damaged and has to be replaced; replacing the replacement is not a waste of money. The big principle is that, but if you look at the details, such

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<sup>10</sup> Eddy Cahyono Sugiarto, "Investasi Dan Indonesia Maju," <https://www.setneg.go.id/>, 2019, [https://www.setneg.go.id/baca/index/investasi\\_dan\\_indonesia\\_maju](https://www.setneg.go.id/baca/index/investasi_dan_indonesia_maju).

as PCU, server, cloud, and all kinds of hardware, that's it. The software is various things, I don't understand that"<sup>11</sup>.

According to Wibowo (2024), the interview conducted on May 22 is an affordable technology guaranteed to be resilient. During this project, funds are needed from loans to the World Bank, which is a complete concern so that it does not become a double budget. If it is related to loan funds, it will be challenging to revise the budget because previously, there had been approval, endorsement, and signing.

After that, the technology used must also be resistant and sustainable, easy to use by users, and easy to maintain if this technology is damaged. One example of technology in this education digitalization project is e-learning for teaching and learning in the madrasah environment.

### **The main objectives of the education digitalization cooperation program**

"This is not the core game, business game, or main goal because he is a sub of one of the components of the madrasah digital learning. If you ask what the purpose of the digital learning madrasah is, it is to build a digital learning ecosystem in Madrasah. So we build it gradually. First, we instill the mindset, if it's rough brainwashing, and then, from the results, we enter the habit and finally become a culture of using ICT technology for learning. So, for example, it's easy like this: the Madrasah has a laptop, which is only used to carry out data input; after that, it is no longer used and stored. The laptop can be moved to the classroom, used by teachers to explore and add information when learning, or even used by their students. For later, when there is a learning interaction, you try to answer yourself or test whether the answer you gave earlier is correct, browsing on YouTube or elsewhere. That's how it is; IT is not just limited to tools, buying, being able to use, continuing to stop, that's not all. However, a mindset, habit, and culture must support learning in the Madrasah. Even including the administrative system, it is no longer later, for example, librarians, the library borrows it and borrows it no longer using manuals"<sup>12</sup>

According to Wibowo (2024), the interview was conducted on May 22 to build a digital learning ecosystem in Madrasah. It is also built in stages. We will start by instilling a mindset that we should be aware of digital learning technology, which is expected to provide easy access for all students in Indonesia.

After that, we must also be able to get used to this new technology. Finally, it aims to make the digitization of education a new culture so that all elements of teachers, lecturers, teachers, and students can adapt to information and communication technology like this for teaching and learning activities.

In addition, with this educational digitalization cooperation project, the old learning activity system, which requires teachers and students to meet face-to-face, can be replaced more flexibly and efficiently through face-to-face

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<sup>11</sup> Doni Wibowo, Personal Interview, May 22, 2024

<sup>12</sup> *Ibid*

interaction in an online network. This is also expected to encourage the quality of learning in Indonesia so that it can compete with other developed countries.

In addition to helping teaching and learning activities become more manageable, this education digitization project also wants to make it easier for students to access school administration. Some examples are school administration payments, borrowing books from the library, student attendance, and others.

### **The main challenges faced in the education digitalization cooperation program**

"First, from the side of the implementing agency, the personnel who are placed, who are appointed to manage this program or project must share their time, energy, and thoughts with their routine duties. So, a double job simultaneously is very, very hard. I experienced a heavy project that required high concentration; it needed our encouragement and high engagement. So, from the technical ministry's side, it places competent personnel, chooses competent personnel, and then the personnel are willing to divide time and want to divide tasks. There are competent personnel who do not necessarily want to divide their time. Because this is an additional task, and the material benefits are not much, it may even be non-existent. In terms of the process, yes, indeed, if other ministries support it, BAPPENAS is okay, and the Ministry of Finance is okay. From our side, it's also a budgeting calendar; the budget revision is because it is not as easy as pure rupiah funds. After all, this loan is a long process. After all, you have to use lenders and lender approval. This long process often accumulates behind the scenes, resulting in potential delays in the execution of activities. Then, in terms of implementation, because we involve the regional office, the Ministry of Religion, and the end user of the Madrasah, yes, we still do not admit much to build awareness that this is a program to improve the quality of the Madrasah and service governance. So indoctrinate them to understand this project, then do it seriously"<sup>13</sup>.

According to Wibowo (2024), in an interview conducted on May 22, there are many challenges faced in the process of collaborating on the digitalization of education, one of them in terms of implementation or arguably in terms of its implementation. Existing personnel must share their time, energy, and thoughts from their routine duties. So they have two busyness at the same time. Because this project is hefty and requires very high concentration, encouragement and engagement are also great to be in this project.

So, from the technical ministry side, they place competent personnel willing to divide their time and eager to divide tasks. There are skilled personnel, but they cannot necessarily divide their time because this is an additional task, and there are few material benefits. It tends to be none.

Other ministries, such as Bappenas and the Ministry of Finance, support the process. Then, from the side of the ministry of religion, there are challenges

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<sup>13</sup> Ibid

regarding the budgeting calendar. Budget revision: This loan is not as easy as pure rupiah funds, so the process is much longer and requires a lender.

This lengthy process often accumulates behind the scenes, resulting in the execution of activities. Then, in terms of implementation, because the Ministry of Religion moves centralistically involving regional offices and Madrasah, there is still not much awareness that this program is meant to improve the quality of Madrasah or service governance.

### **Impact and changes felt after the Education Digitalization Cooperation program.**

"So, in every project and program, there must be an evaluation. So, evaluate how far or close to the target set is in each timeline. We also conducted the evaluation, which was carried out jointly between the World Bank, the BAPPENAS, and the Ministry of Religious Affairs as the technical ministry. Until this 5th year, this program has been empirically proven; academically, it provides good benefits to Madrasah. Suppose we have been able to quantitatively measure how many Madrasah have increased their national education standards, we have been able to measure how many teachers have increased their competence quantitatively, and so on; the point is that our end users feel the positive side of this project. Whether it is an institutional madrasah or teachers and educators, it is proven that this project has a positive impact"

According to Wibowo (2024), in the interview conducted on May 22, every project or program must have an evaluation, so here we evaluate how far or how close we are to the target set in each timeline. The Ministry of Religion also conducts the assessment jointly with the World Bank, the Ministry of Bappenas, and the Ministry of Religion itself.

Up to the 5th year, this program has been proven empirically and academically to provide good benefits, especially for Madrasah. For example, the Ministry of Religion has quantitatively measured how many Madrasah have increased their national education standards. Then, the Ministry of Religion also quantitatively measured how many teachers had improved their competency standards. Those are some of the things that are benchmarks for the positive changes felt after the holding of this education digitalization cooperation program.

### **Sustainability of the Education Digitalization Cooperation Program Through E-learning for Madrasah**

"So what I understand is that the sustainability design is not designed at the beginning of the project. Maybe this is a record for all projects; all projects were designed when the pre-project began, so you have to think about that as well. In addition to the implementation earlier, sustainability must also be considered. It seems that what I understand in this project is not real. Yesterday, we thought that towards the last year, I was thinking about the exit strategy so that the spirit of this project, the legacy of this project, can remain sustainable. At least the strategy met three things; the first is to guarantee with the certainty of the

regulations. So, the regulations that cover this project can continue to run easily. From the human side, we have to ensure that the people who can later guarantee this sustainability spirit are contagious to many people. So, not only in one particular locus, it can also spread. If it spreads, it means that the more people who understand, the more people are aware of the importance of the spirit of a project, so that more people show their concern. The last is budget support, which is why budget support from non-loans is critical. This is a problem because this budget support must require a big effort and strong political will from the leadership of other ministries to ensure its support. If not, it is a bit difficult, so even if the human resources are ready, if the budget to cover this is staggered, maybe this program will not be sustainable"

According to Wibowo (2024), this sustainability program was not designed from the beginning of the project because every project that will be implemented should have regulated the project's sustainability from the start of the plan. The Ministry of Religious Affairs is still trying to figure out how this project can still be sustained in the end. However, at least three draft strategies are designed to ensure this program's sustainability. First, ensuring clear regulations will allow these project activities to continue.

Second, in terms of guaranteeing human resources (HR), the Ministry of Religion must ensure that human resources who work together in this cooperation program continue to think about how this cooperation will take place. At the same time, it provides an understanding of the purpose of this project so that more people understand, with the hope that if more people understand, they will continue to be enthusiastic to continue this cooperation program. The last factor is the budget support factor. Because this budget support must require considerable effort, it must have a great desire from the project leaders to ensure that the budget support continues to run smoothly.

### **Indonesia's Decision to Make the Ministry of Religious Affairs an Intermediary in Cooperation with the World Bank for Madrasah**

"Because the Madrasah is part of the national education system, we have 87,000 educational units, from RA to MA, which is an empirical fact. Then, the juridical fact is that we are guaranteed by the 2023 national education law and its derivatives, the government and all its derivatives, and we also make a real contribution to our education. This means that Madrasah is indeed a cluster that determines the good and bad of education. So it is natural that the World Bank and the Indonesian government are also enthusiastic about intervening in Madrasah, which happens to be under the auspices of the Ministry of Religious Affairs"

According to Wibowo (2024), Madrasah is part of the national education system. The Ministry of Religion has many educational units ranging from Raudhatul Athfal (RA), Madrasah Ibtidaiyah (MI), Madrasan Tsanawiyah (MTS), and Madrasah Aliyah (MA). In addition, the Ministry of Religion is also

guaranteed by the national education law, and the Ministry of Religion has made a real contribution to Indonesian education, especially Madrasah.

In this case, it can be conveyed that a Madrasah under the auspices of the Ministry of Religion can be a determining factor in the success of an education under the control of the Ministry of Religion. So, it is natural for the World Bank to cooperate with the Ministry of Religion to intervene in Madrasah, which is basically under the auspices of the Ministry of Religion.

### **Discussion**

The Government of Indonesia and the Ministry of Religious Affairs of the Republic of Indonesia are committed to encouraging digital transformation in various sectors, including education. This project is in line with the vision of the Republic of Indonesia to build Indonesia's digital infrastructure to strengthen the ability of Indonesian citizens to digitalize, especially education among students and educators.

The Government of Indonesia and the Ministry of Religious Affairs of the Republic of Indonesia firmly commit to encouraging digital transformation in various sectors, including education. The project aligns with the country's vision to build a more substantial digital infrastructure, which aims to improve the ability of Indonesian citizens to digitalize, especially among students and educators. This digital transformation is focused on providing technology and developing the capacity and skills needed to utilize the technology effectively.

The government's commitment to encouraging digital transformation can be seen in the various initiatives launched, including programs supporting school digitalization. The Ministry of Education and Culture (Kemendikbud) has prioritized digitalization initiatives to improve the quality of education in Indonesia.<sup>14</sup> By utilizing information and communication technology (ICT), the learning process is hoped to become more interactive and engaging and reach more students in various regions, including remote areas.

Developing a strong digital infrastructure is an essential step in supporting the digital transformation of education. This includes providing adequate internet access, the necessary hardware, and an effective learning platform. Research shows that good infrastructure can increase student participation in online learning and support the development of digital skills needed in the era of Industry 4.0 and Society 5.0.<sup>15</sup> Therefore, investment in digital infrastructure must be a priority in education policy.

In addition to infrastructure, capacity building for educators is also very important. Professional training and development for teachers in using ICT will ensure that they can integrate technology into learning effectively. Research shows

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<sup>14</sup> Muhammad Abduh, "Modernisasi Pembelajaran Agama Islam Pesantren Jagat Arsy Sebagai Respon Terhadap Revolusi Industri 4.0," 2023, <https://doi.org/10.59166/syaikhona.v1i1.66>.

<sup>15</sup> Cut N Isma, Rina Rahmi, and Hanifuddin Jamin, "Urgensi Digitalisasi Pendidikan Sekolah," *At-Ta Dib Jurnal Ilmiah Prodi Pendidikan Agama Islam*, 2022, 129–41, <https://doi.org/10.47498/tadib.v14i2.1317>.

that teachers trained in technology use will be better able to create an innovative learning environment that is responsive to student needs.<sup>16</sup> Therefore, continuous training programs must be integral to digital transformation strategies.

While digital transformation offers many opportunities, challenges must also be faced. One of the main challenges is the digital divide that still exists between urban and rural areas. To address this, a collaborative effort must be made between governments, educational institutions, and the community to ensure that all students have equal access to technology and educational resources.<sup>17</sup>

Digital transformation in education in Indonesia is a strategic step that can improve the quality of teaching and prepare students to face challenges in the digital era. With the government's commitment, adequate infrastructure development, and capacity building for educators, education in Indonesia is hoped to adapt to the changing times and provide maximum benefits for all citizens. Therefore, it is essential to continue to support and develop these initiatives to achieve the desired goals.

### **Improving the Quality of Education**

Indonesia faces significant challenges in improving the quality of education, primarily related to the gap in access and quality of education in various regions. Cooperation in the field of education digitalization is expected to be a solution to overcome this problem. By utilizing information and communication technology (ICT), the digitalization program aims to improve the quality of education in Madrasah and other schools and provide equal access to all students, regardless of geographical location.

The high level of education lags in several areas, such as Kertamukti Village, which shows that human resources quality needs improvement. Implementing Community Learning Classes in the village is an example of efforts to improve literacy and the quality of education<sup>18</sup>. However, without adequate digitalization support, these efforts may not be enough to address the more significant problems of Indonesia's education system.

Digitalization of education can expand students' and teachers' access to more quality educational resources. Research shows that implementing digitalization strategies in academic institutions can improve the quality and relevance of learning. Using digital platforms allows students to access more

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<sup>16</sup> A Agasta Gane, "Dampak Teknologi Terhadap Proses Belajar Mengajar," 2024, <https://doi.org/10.31237/osf.io/hc5un>.

<sup>17</sup> Thoriqi Firdaus, "Representative Platform Cyber Metaverse Terkoneksi BYOD Sebagai Upaya Preventive Urgensi Digital Pada Sistem Pendidikan Indonesia," *Jurnal Integrasi Dan Harmoni Inovatif Ilmu-Ilmu Sosial*, 2023, <https://doi.org/10.17977/um063v3i2p123-131>.

<sup>18</sup> Muhammad Viki Nisfani Al Azis et al., "Implementasi Kelas Belajar Masyarakat (Kelarmas) Dalam Meningkatkan Literasi Dan Mutu Pendidikan Di Desa Kertamukti Kecamatan Cibitung Kabupaten Bekasi," *Edukatif Jurnal Ilmu Pendidikan* 4, no. 4 (2022): 6110–19, <https://doi.org/10.31004/edukatif.v4i4.3253>.

varied and interactive learning materials, improving their motivation and learning outcomes.

The readiness of schools to adopt digitalization is also an essential factor. Research in West Sumbawa Regency shows that schools in the area are ready to implement digitalization, although some things still need to be improved. This indicates that with the proper support, schools across Indonesia can transform into more digital and responsive to the needs of modern education.

To achieve improved education quality through digitalization, the government needs to formulate policies that support the development of ICT infrastructure, teacher training, and increased student access to technology. Inclusive and sustainable policies will ensure the participation of all elements of education in the digitalization process, thereby reducing existing gaps. Improving the quality of education in Indonesia through digitalization is a strategic step that can help overcome the gap in access and quality of education. By utilizing information and communication technology, it is hoped that all students in Indonesia can obtain quality education, regardless of their geographical location. Therefore, support from the government, educational institutions, and the community is essential to ensure the success of this initiative.

#### **Learning from the COVID-19 Pandemic Outbreak**

With the COVID-19 pandemic, Indonesia can learn, anticipate, and immediately create distance education solutions (Online). The cooperation carried out by Indonesia and the World Bank (World Bank) helped the condition of the Indonesian state, which was experiencing an emergency at that time, by providing digital access to the facilities and infrastructure needed for distance learning. The Covid-19 pandemic has accelerated the need for digitalization in education. Research shows that many schools were forced to adapt to online learning during the pandemic, which requires teachers and students to be more creative and innovative in the teaching and learning process. Despite the decline in education quality during the pandemic, this experience provided valuable lessons on the importance of digital readiness in facing future challenges.

#### **Capacity Building and Infrastructure**

Indonesia needs support to increase the capacity of Information and Communication Technology (ICT) in many schools. This collaboration aims to strengthen the infrastructure and resources required to implement education digitalization. In the context of the digitalization of education in Indonesia, increasing the capacity of Information and Communication Technology (ICT) in Madrasah is very important. The collaboration between the World Bank and the Ministry of Religious Affairs aims to strengthen the infrastructure and resources needed for the implementation of digitalization of education. ICT capacity building not only includes providing hardware and software but also involves training teachers and madrasah managers to utilize technology in the learning process effectively.

Increasing ICT capacity in the Madrasah is vital to ensure the learning process can occur effectively and efficiently. Research shows that ICT training for teachers can improve their pedagogic competence, which in turn positively impacts the quality of teaching.<sup>19</sup> With adequate training, teachers will be better able to integrate technology into learning, creating a more interactive and engaging learning experience for students.

Adequate ICT infrastructure is also a key factor in the success of education digitalization. Madrasah needs good internet access, adequate hardware, and appropriate software to support the learning process. Research shows that managing educational innovation and developing ICT infrastructure is indispensable to improving the quality of education in Madrasah. Without adequate infrastructure, efforts to digitize education will be hampered, and optimal results will not be provided.

The supervision of madrasah heads also plays a vital role in increasing ICT capacity. Through supervision based on performance assessment, madrasah heads can guide and support teachers in utilizing ICT effectively. In addition, good management of madrasah resources will ensure that all education components, including ICT, can be appropriately managed to achieve the desired educational goals.

Community involvement is also crucial in supporting the Madrasah's capacity-building and ICT infrastructure. Research shows that the community's role in improving the education quality in Madrasah can have a positive impact, including fundraising for ICT infrastructure development. With the community's support, Madrasah can more easily access the resources needed to increase ICT capacity. Increasing ICT capacity and infrastructure in Madrasah is essential in supporting the digitalization of education in Indonesia. The collaboration between the World Bank and the Ministry of Religious Affairs is expected to strengthen the infrastructure and resources needed for the implementation of digitalization of education. Through training for teachers, adequate infrastructure development, effective supervision, and community involvement, Madrasah can improve the quality of teaching and prepare students to face challenges in the digital era.

The study results show that the education digitalization program supported by the World Bank and the Ministry of Religious Affairs has significantly contributed to improving the quality of education in Madrasah. A study shows that the application of technology in Islamic education, such as the one carried out at MA Darul Ulum, has succeeded in overcoming existing challenges and increasing the effectiveness of learning<sup>20</sup> This is in line with other

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<sup>19</sup> (Yufita, Sihotang and Tambunan, 2021)

<sup>20</sup> Nunuk Indarti and Sapto Hadi Riono, "Revolusi Digital Pendidikan Islam: Implementasi Program Pengabdian 1DIS Satu Dosen Satu Sekolah Di MA Darul Ulum Karang Pandan Rejoso Kabupaten Pasuruan," *Jurnal Bangun Abdimas* 3, no. 1 (May 24, 2024): 258–60, <https://doi.org/10.56854/ba.v3i1.347>.

findings that show that the digitization of Madrasah can increase the commitment and participation of Madrasah in the learning process. However, challenges must be faced, such as the low digitalization score in some regions (Nihayaty, 2022).

Furthermore, research conducted by Nihayaty et al. shows that good leadership and organizational culture are essential in motivating employees and improving their performance<sup>21</sup> In the context of Madrasah, effective leadership from madrasah heads is urgently needed to encourage technology adoption and ensure that all parties are involved in the digitalization process<sup>22</sup> Other research also underscores the importance of a positive work environment and employee rewards in increasing work motivation, which impacts performance.<sup>23</sup>

Further analysis shows that despite progress in the digitalization of education, there is still a gap in the application of technology in Madrasah. Some madrasah struggle to integrate technology effectively into their curriculum, which can hinder learning<sup>24</sup> Therefore, there is a need for a more targeted strategy from the Ministry of Religious Affairs and the World Bank to provide better support to Madrasah in overcoming this challenge. The results of this analysis show that Indonesia's education digitalization cooperation program for Madrasah has excellent potential to improve the quality of education but requires more attention in terms of implementation and continuous support. With strong leadership, a positive organizational culture, and support from related parties, the digitalization of education in Madrasah can run more effectively and provide more significant student benefits.

The study results show that the education digitalization program in Madrasah has significantly impacted the learning process and education management. Based on data from a survey of 100 madrasah in various regions, 75% of respondents reported an improvement in the quality of learning after applying digital technology. This includes online learning platforms, classroom management apps, and more accessible digital educational resources.

Furthermore, the analysis shows increased student participation in teaching and learning activities. As many as 68% of students said they feel more

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<sup>21</sup> Nihayaty and Fanani, "Digitalisasi Madrasah: Langkah Kalangan Muslim Di Era Media Baru."

<sup>22</sup> Samudi ST, Kesi Widjajanti, and Dian Indriana T, "Analisis Pengaruh Kepemimpinan, Budaya Organisasi Dan Rotasi Kerja Terhadap Kinerja Pegawai Negeri Sipil Pada Madrasah Tsanawiyah Negeri Di Lingkungan Kementerian Agama Kabupaten Demak Dengan Motivasi Kerja Sebagai Variabel Intervening," *Jurnal Riset Ekonomi Dan Bisnis* 16, no. 2 (September 3, 2023): 188, <https://doi.org/10.26623/jreb.v16i2.6770>.

<sup>23</sup> Muhammad Robiansyah, Ahmad Muhammad Ridho, and Gokmanto Siringoringo, "PENGARUH LINGKUNGAN KERJA, KEPEMIMPINAN DAN PENGHARGAAN TERHADAPA MOTIVASI KERJA KARYAWAN PADA KANTOR KEMENTERIAN AGAMA KOTA PALEMBANG," *JEMBATAN (Jurnal Ekonomi, Manajemen, Bisnis, Auditing, Dan Akuntansi)* 8, no. 2 (March 30, 2024): 151–63, <https://doi.org/10.54077/jembatan.v8i2.170>.

<sup>24</sup> Nurintan Asyiah Siregar et al., "Pengaruh Disiplin Kerja, Motivasi Kerja Lingkungan Kerja, Dan Persepsi Pegawai Terhadap Kinerja Pegawai Di Kantor Kementerian Agama Kabupaten Labuhanbatu," *Jurnal Alwatzikhoebillah : Kajian Islam, Pendidikan, Ekonomi, Humaniora* 9, no. 2 (July 1, 2023): 397–408, <https://doi.org/10.37567/alwatzikhoebillah.v9i2.1840>.

motivated to learn with digital technology. This aligns with the theory of learning motivation, which states that using technology can increase student engagement in the learning process<sup>25</sup> In terms of impact, this program also contributes to improving teacher competence. The training provided by the Ministry of Religious Affairs and the World Bank to madrasah teachers has proven effective in enhancing their teaching skills. As many as 80% of teachers reported improving their ability to use technology. This aligns with previous research that shows proper training can improve teaching effectiveness.<sup>26</sup>

However, despite significant progress, the analysis also identifies challenges in implementing digitalization programs. One of the main challenges is the gap in access to technology in remote areas. Data shows that 30% of rural Madrasah still experience difficulty accessing stable internet, which hinders the digital learning process. This reflects the wider digital divide in Indonesia, where access to information and communication technology is still uneven.<sup>27</sup>

In the theoretical context, the results of this study support the hypothesis that the digitalization of education can improve the quality of education in Madrasah. The theory of Constructivism, which emphasizes the importance of interaction and experience in learning, is also relevant here. Digital technology allows students to be more actively involved in learning, thus supporting a constructivist approach to education<sup>28</sup> These results and analysis show that Indonesia's education digitalization cooperation program for Madrasah has excellent potential to improve the quality of education. While challenges need to be addressed, such as the gap in access to technology, the program's positive impact on student motivation and teacher competence is significant. Therefore, recommendations to increase infrastructure support and ongoing training for teachers and students are urgently needed to ensure the sustainability and effectiveness of this digitalization program in the future.

## CONCLUSION

Indonesia's education digitalization cooperation program for Madrasah, which was implemented through collaboration between the World Bank and the Ministry of Religious Affairs, has significantly improved education quality in Madrasah. This research has identified that the application of digital technology in the learning process increases student motivation and strengthens teacher

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<sup>25</sup> Edward L. Deci and Richard M. Ryan, "The 'What' and 'Why' of Goal Pursuits: Human Needs and the Self-Determination of Behavior," *Psychological Inquiry* 11, no. 4 (October 2000): 227–68, [https://doi.org/10.1207/S15327965PLI1104\\_01](https://doi.org/10.1207/S15327965PLI1104_01).

<sup>26</sup> Thomas R. Guskey, "Professional Development and Teacher Change," *Teachers and Teaching* 8, no. 3 (August 25, 2002): 381–91, <https://doi.org/10.1080/135406002100000512>.

<sup>27</sup> World Bank, *Digital Economy for Indonesia: Opportunities and Challenges* (Washington, DC.: World Bank Publications, 2021), <https://openknowledge.worldbank.org/bitstream/handle/10986/36018/162061.pdf?sequence=5&isAllowed=y>.

<sup>28</sup> (Piaget, 1973).

competence. The survey results show that most Madrasah involved in this program have experienced an increase in learning and education management effectiveness.

This research contributes to a deeper understanding of how digitalization can be an effective tool in improving the quality of education in Madrasah, especially in Indonesia, which has unique geographical and social challenges. The study also highlights the importance of ongoing teacher training and equitable access to technology as key factors in the success of digitalization programs.

However, this study also acknowledges some weaknesses. One of them is the limitation in the scope of the research, which only covers several Madrasah in certain areas, so the results may not fully represent all Madrasah in Indonesia. In addition, the digital divide in remote areas is still an issue that must be overcome to ensure that all Madrasah can use technology optimistically.

Following these findings, several future research opportunities can be explored. First, further research can be conducted to investigate the long-term impact of digitalization of education on student learning outcomes in Madrasah. Second, a more in-depth study of strategies to address technology access gaps in remote areas would be very beneficial. Finally, research into how organizational culture in Madrasah affects technology adoption can provide valuable additional insights.

Thus, although this educational digitalization cooperation program shows positive results, the existing challenges and questions arising from this research pave the way for further exploration in the field of digital education in Madrasah. This research is expected to provide a foundation for better education policies and more effective implementation strategies in the future.

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