The Development Model of the Digital-Based *Madrasah Diniyah* at Islamic Boarding School Padepokan Kyai Mudrikah Kembang Kuning

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	Abstract
Keywords: Madrasah Development Model; *Madrasah Diniyah*; Digital-Based Madrasah.	Digital era has forced all educational institutions to change, including *Madrasah Diniyah*. *Madrasah Diniyah*, as a non-formal educational institution focused on teaching Islamic values, is required to adapt to these changes to remain relevant. This research aims to explore the digital-based development model of *Madrasah Diniyah* at Islamic Boarding School Padepokan Kyai Mudrikah Kembang Kuning Pamekasan (IBS PKMKK). The research method applied is a case study analysis, involving data collection through interviews, observations, and the evaluation of relevant documents. This study emphasizes the suitability of this digital development model with local needs and context. Although located in rural areas, IBS PKMKK *Madrasah Diniyah* has adapted to the demands of the modern era without abandoning its primary focus on religious education, becoming a kind of oasis that encourages the adoption of digital-based learning in a community that previously prioritized quality education less.

	Abstrak:
Kata Kunci: *Model Pengembangan Madrasah; Madrasah Diniyah; Madrasah Berbasis Digital.*	*Era digital telah memaksa semua lembaga pendidikan berubah, termasuk Madrasah Diniyah. Madrasah Diniyah sebagai lembaga pendidikan non-formal yang berfokus pada pengajaran nilai-nilai Islam, dituntut untuk mengadaptasi perubahan ini agar tetap relevan. Penelitian ini bertujuan mengeksplore model pengembangan Madrasah Diniyah berbasis digital di Islamic Boarding School Padepokan Kyai Mudrikah Kembang Kuning Pamekasan (IBS PKMKK). Metode penelitian yang diterapkan adalah analisis studi kasus, yang meliputi proses pengumpulan data melalui proses wawancara, pengamatan, serta evaluasi dokumen yang relevan. Studi ini menekankan kesesuaian model pengembangan digital ini dengan kebutuhan dan konteks lokal. Meskipun berlokasi di pedesaan, Madrasah Diniyah IBS PKMKK telah beradaptasi dengan tuntutan era modern tanpa melepaskan fokus utama mereka pada pendidikan agama, keadaan ini menjadi semacam oase yang mendorong adopsi pembelajaran berbasis digital dalam komunitas yang sebelumnya kurang memprioritaskan*

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pendidikan berkualitas.

1. Introduction

In this modern era, *Madrasah Diniyah* must adapt to the needs and expectations of students, the community, and the demands of the workforce. The development of the digital-based *Madrasah Diniyah*, undertaken by the Islamic Boarding School *Padepokan Kyai Mudrikah Kembang Kuning (IBS PKMKK)*, has emerged as an alternative to meet these demands. The *Madrasah Diniyah* at IBS PKMKK has implemented the digitization of learning, not only in activities related to memorizing and reviewing the Qur'an but also in other learning activities such as literacy, fast reading of traditional Islamic texts, tajwid (Qur'anic recitation rules), and hadith studies.

This digital-based development model for *Madrasah Diniyah* can enhance educational accessibility for students who face constraints related to distance, time, or mobility. This model allows students to learn flexibly, anytime and anywhere. The students at IBS PKMKK are familiar with the practice of reviewing memorized verses of the Qur'an using digital devices, a practice that has been in place since 2021.[1] Currently, *Madrasah Diniyah* IBS PKMKK is actively innovating by developing multimedia, integrating and assembling all religious materials, including hadith, fiqh, theology, and more. All of these materials are combined with the latest technology, such as an interactive flat panel powered by the latest 12th generation Core i9, a smart TV, the latest Intel NUC Gen 12 technology equipment with Core i9, and thirty (30) SSD core i7 laptops, along with nine types of cameras- all aimed at enhancing the quality of learning.[2]

The evidence of multimedia development at *Madrasah Diniyah* IBS PKMKK is reflected in the release of 8 books for the first semester and 9 books for the second semester within the span of one year. As part of the efforts to support the writing program, each student is equipped with a high-powered laptop featuring a Core i7 processor. The high specifications of these laptops not only support writing activities but are also utilized by students in graphic design and video editing programs, starting with the skill of 10-finger typing. This provides them with the flexibility and capability they need for the development of their technical skills.[3]

IBS PKMKK now possesses 12 smart TVs, each measuring 65 inches, and an Interactive Flat Panel (IFP) also sized at 65 inches. The Information and Technology (IT) development team, alongside the students, has created a recitation (murottal) of the Qur'an that is uploaded to the *Padepokan Kyai Mudrikah Kembang Kuning* YouTube channel. Students can view and download it using their smartphones. Consequently, the practice of reciting the Qur'an

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[1] Heni Listiana, "Interview with the CEO on Digital-Based Learning at IBS Padepokan Kyai Mudrikah Kembang Kuning." (2023).

[2] Her Qudeta, "Second Anniversary, Kyai Mudrikah Padepokan Launches 9 Books," *Qureta.Co*, 2023, https://qudeta.co/2023/07/19/anniversari-second-padepokan-kyai-mudrikah-launches-9-book/.

[3] Taufiqurrahman, "The Story of Students in Pamekasan, Successfully Publishing 9 Books Within 1 Year.," *Kompas.Com*, accessed September 23, 2023, http://edukasi.kompas.com/read/2023/07/21/090000871/history-student-in-pamekasan-successfully-publishing-9-book-within-1-year.

(murojaah) can be carried out in their respective homes, employing the same techniques and models.[4] The consistency in the learning media used, in this case, the recitation videos of the Qur'an both at the madrasah and those downloaded by students, facilitates the students in reinforcing their memorization of the Qur'an.[5]

The digital-based development model for *Madrasah Diniyah* offers a more interactive and engaging learning experience for students. By utilizing multimedia, animations, and interactive applications, this model can enrich the learning process and enhance student engagement. In addition to being digital media users, students are also taught to develop various skills, such as creating presentations through 4D PowerPoint or Canva. Students are also instructed in the use of simple interactive applications to edit images and videos, which are then uploaded to various social media accounts owned by IBS PKMKK.

Digital-based education is an essential innovation to anticipate the era of Education 4.0, where cyber technology becomes an integral part of the teaching and learning process. The primary goal of Education 4.0 is to shape creative and adaptable Human Resources (HR) capable of meeting the demands of a world undergoing a digital-based industrial revolution. Education 4.0 encourages a transformation in the education sector, moving away from the traditional classroom-centered learning activities. This type of education opens up broader learning spaces, unrestricted by physical locations and time constraints, as it can be conducted anytime and anywhere through various digital platforms.[6]

Education 4.0 is both a challenge and an opportunity in this digital era. The challenge for *Madrasah Diniyah* lies in the need for adaptation and updates in teaching and learning methods. The opportunity arises because, with this approach, education can become more inclusive, effective, and engaging. However, the implementation and transition to Education 4.0 must be carried out carefully, ensuring that all students have equal access and receive a quality education.

The digital learning model indeed offers significant changes in teaching styles, techniques, and motivation for both educators and learners. In terms of teaching style, digital learning allows for a more individualistic and flexible approach, where each student can learn at their own pace and according to their learning style.[7] Regarding teaching techniques, digital learning often integrates various media and methods, such as videos, animations, interactive quizzes, and simulations, which can enhance understanding and student engagement. Furthermore, digital learning enables the use of advanced technologies like virtual reality and augmented reality, creating deep and engaging learning experiences by leveraging hybrid classroom spaces developed at Madrasah Dinyah IBS PKMKK. Digital learning can provide instant feedback and personalization that helps students track their progress and motivates them to continue learning. For educators, technology can reduce administrative burdens and allow them to focus more on projects that support student learning, becoming the target of their efforts.

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[4] Achmad Muhlis, "Muroja'ah Digital" (Pamekasan, 2022).

[5] Listiana, "Interview with the CEO on Digital-Based Learning at IBS Padepokan Kyai Mudrikah Kembang Kuning."

[6] Neng Marlina Efendi, "Digital Learning Revolution (The Use of Digital Animation in Start-Ups as a Method for Active Student Learning)," *Habitus: Jurnal Pendidikan, Sosiologi, & Antropologi 2* 2 (2019): 173, doi:10.20961/habitus.v2i2.28788.

[7] Azzahrah Aida, Indra Adi Budiman, and Yuyun Dwi Haryanti, "Students' Reflection on Learning," *Metaedukasi* 1, no. 1 (2021): 16.

The digital learning model is an effective future model that aligns with the demands of advancing technology. Digital skills are becoming increasingly crucial in almost every aspect of life, and this learning model prepares students with the skills they need to succeed in an increasingly digital world. However, it also requires investment in technological infrastructure and training for teachers so that they can use and leverage this technology effectively in their teaching.

Research related to *Madrasah Diniyah* and digitization has been conducted by Fauzan et al., focusing on training aimed at assisting prospective teachers at *Madrasah Diniyah* Al-Muhsinat Bululawang Malang in creating digital media for Tajwid and Tilawah Al-Qur'an learning, covering 7 topics related to digital media creation.[8] A study by Amin et al. states that the development of instructional media follows the Multimedia Development Life Cycle (MDLC) method, consisting of concept, design, content collection, creation, testing, and distribution stages. Adobe Flash CS6, Corel Draw, and Adobe Photoshop were used as image processing tools, while Cool Edit Pro was used for audio processing. The study concludes that multimedia calligraphy learning media is suitable and can help students understand the material, serving as independent learning media.[9] However, Amin's research is limited to calligraphy learning media. In *Madrasah Diniyah* IBS PKMKK, digital development has been applied to every subject, supported by more advanced equipment.

One interesting and original aspect of this research is the innovative transformation of the *Madrasah Diniyah*, which has shown sensitivity to the challenges of the times. While *Madrasah Diniyah* is often considered trivial and only complementary to formal education, *Madrasah Diniyah* IBS PKMKK has taken a significant and concrete step forward in internalizing digital tools.

2. Methods

This research method employs an exploratory qualitative approach with a case study design, utilizing in-depth interview techniques, observation, and documentation. In-depth interviews are used to understand local needs and contexts and to gain perspectives related to the implementation of digital-based models. Interviews with teachers, students, and the head of the *Madrasah Diniyah* IBS PKMKK are conducted to gather information about the challenges and obstacles faced in implementing the digital-based approach. Direct observation is carried out to understand the practices in detail. The analysis of documents, such as the development plan of the *Madrasah Diniyah*, can provide information about the vision, mission, goals, and development priorities of *Madrasah Diniyah* IBS PKMKK in the context of digitization. Document analysis helps in understanding the desired development direction and how the digital-based model is integrated into the plan.

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[8] Moh Fauzan et al., "Training on Digital Media Creation for Tajweed and Quranic Recitation for Prospective Teachers of Al-Muhsinat Islamic Boarding School in Bululwang, Malang," *Tifani : Jurnal Penelitian Dan Pengabdian Kepada Masyarakat* 2, no. 2 (2022): 1–7, http://tifani.org/index.php/tifani/article/view/30%0Ahttp://tifani.org/index.php/tifani/article/download/30/18.

[9] M. Al' Amin and Achmad Rizal, "Multimedia-Based Calligraphy Art Learning Application in Awaliyah Islamic Elementary School, Bojongsana," *National Seminar on Information Technology and Multimedia* 4, no. 8 (2016): 1, https://ojs.amikom.ac.id/index.php/semnasteknomedia/article/view/1366/1283.

3. Result and Discussion

3.1. Model of Madrasah Diniyah Development

The development of digital-based *Madrasah Diniyah* is an innovative strategy to address the challenges of the modern era. The use of digital technology in *Madrasah Diniyah* education can enhance the quality of learning more effectively and efficiently.

IBS PKMKK has five pillars of institutional development: one day one verse, one activity one paragraph, one hadith one presentation, one week three languages, and one student one laptop.[10] To support digital-based learning activities, a strong Wi-Fi network is provided in each classroom. An electric generator is available with ample capacity, ensuring that learning can continue in the event of a power outage.

The *Madrasah Diniyah* at IBS PKMKK consists of two levels, namely *Madrasah Diniyah* Takmiliyah Awwaliyah (MDTA) and *Madrasah Diniyah* Takmiliyah Wustho (MDTW). The head of MDTA is K.H Abdul Rasyid Sufi, S.Pd, and the head of MDTW is Nyai Hj. Wiqayah. S.S. All these educational levels are under the supervision of the principal director of IBS PKMKK, Dr. K.H Achmad Muhlis, MA. There are 138 students in *Madrasah Diniyah* IBS PKMKK.

Traditionally, students at *Madrasah Diniyah* are identified with the activity of studying religious texts. However, at IBS PKMKK, they not only study traditional religious texts but also technology. *Madrasah Diniyah* IBS PKMKK demonstrates a striking difference. This religious school has integrated technology into its education system and learning process. Various supporting facilities, such as digital learning resources, are fully available in this *Madrasah Diniyah* located in Dusun Somber, Desa Lancar, Kecamatan Larangan, Pamekasan, Indonesia.[11]

The digital-based *Madrasah Diniyah* development model at *Madrasah Diniyah* IBS *Padepokan Kyai Mudrikah Kembang Kuning* consists of the following five elements:

1. Utilization of Digital Technology

Madrasah Diniyah IBS PKMKK has utilized digital technology in the teaching and learning process. Each student uses a laptop with core i3, core i5, and core i7 SSD capacities for visual communication design, 12 AIO computers with core i7 specifications for cinematography and live streaming, and 8 Wacom devices to assist students in learning graphic design and photo editing. Additionally, online learning applications or platforms are utilized. Social media platforms such as YouTube (https://www.youtube.com/@padepokankyaimudrikah), Facebook (https://facebook.com/padepokankyaimudrikah_), TikTok (https://www.tiktok.com/@padepokankyaimudrikah), Instagram (https://www.instagram.com/padepokankyaimudrikah_), Web (https://padepokankyaimudrikah.net), and others are used as communication channels between teachers and students or the parents of students.

Social media enables users to connect with others, forming a vast and diverse global digital network. Features such as links facilitate the sharing of

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[10] IBS PKMKK, "Document of Development IBS Padepokan Kyai Mudrikah Kembang Kuning" (Pamekasan, Indonesia: IBS Padepokan Kyai Mudrikah Kembang Kuning, 2022), 15.

[11] IBS PKMKK Admin, "Not Only Studying, Students at the Kiai Mudrikah Padepokan Are Also Tech-Savvy.," 2023, https://padepokankyaimudrikah.net/landing/post/707b7bdf-615a-4714-8934-ce4f624c7bd0.

information and content, aiding in the creation and maintenance of relationships among users.[12]

2. Digital-Based Curriculum

Madrasah Diniyah IBS PKMKK has adopted a flexible curriculum integrated with a semester credit system. The implementation of the curriculum by educational units must consider the achievement of learners' competencies in specific conditions.[13] Madrasahs must continuously make changes and improvements, dare to innovate or introduce new breakthroughs, and utilize information technology to the fullest to enhance the quality of services to the entire school community.[14] *Madrasah Diniyah* IBS PKMKK takes the initiative to have autonomy in educational management and the freedom to create and innovate. It strives to create human-oriented, friendly services that can adapt to the latest developments in knowledge and technology.

The expectation in developing the Madrasah Operational Curriculum is not solely focused on compliance with standardized administrative aspects. Instead, priority is given to the madrasah's innovation and creativity in achieving its vision, mission, and goals. The curriculum structure designated by the government as a reference for madrasahs in building a curriculum to achieve the Pancasila Learner Profile and the Rahmatan lil Alamin Learner Profile can be enriched with the unique characteristics of the madrasah that align with its vision, mission, and goals.[15] This is evidenced by learning being oriented towards the impact, benefits, and expectations of a learning activity or educational service. The Curriculum Design of *Madrasah Diniyah* IBS PKMKK can be seen in Figure 1.
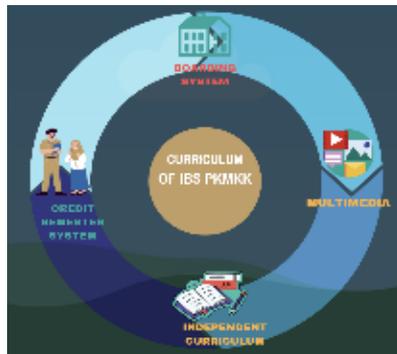

Figure 1. Curriculum of *Madrasah Diniyah* IBS PKMKK[16]
Source: Curriculum document of IBS PKMKK

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[12] Evi Nurus Suroiyah, "The Benefits of Learning Arabic to Improve Listening Skills" 2, no. 2 (2020): 19.

[13] Ministry of Religious Affairs of the Republic of Indonesia, "Decision of the Minister of Religious Affairs of the Republic of Indonesia No. 347 Year 2022 Regarding Guidelines for the Implementation of the Independent Curriculum in Madrasahs" (2022), 1.

[14] Ibid., 5.

[15] Suwadi, "Module for the Development of Learning Tools, Edited by Anis Masykur, Directorate General of Islamic Education" (Jakarta, 2023), 1, http://www.ghbook.ir/index.php?name= فرهنگ و رسانه های نوین&option=com_dbook&task=readonline&book_id=13650&page=73&chkhashk=ED9C9491B4&Itemid=218&lang=fa&tmpl=component%0Ahttp://www.albayan.ae%0Ahttps://scholar.google.co.id/scholar?hl=en&q=APLIKASI+PENGENA.

[16] Achmad Muhlis, "The Curriculum Model of IBS Padepokan Kyai Mudrikah Kembang Kuning" (Pamekasan, 2023).

It can be seen from Figure 1 that the curriculum of *Madrasah Diniyah* IBS PKMKK includes four aspects:[17]

a. Boarding System: Every student is required to stay in the dormitory. Learning activities together can strengthen and optimize the 5 pillars of IBS PKMKK. This boarding system requires the administrators of *Madrasah Diniyah* IBS PKMKK to integrate the national curriculum with the *pesantren* curriculum and even the international system in one learning process with innovative integrated, block, and integrative learning.[18]

b. Multimedia-Based Learning: Serving as the foundation for the digitalization of *Madrasah Diniyah* IBS PKMKK, this becomes a distinctive feature provided to all students by integrating all taught materials into learning using devices provided by *Madrasah Diniyah* IBS PKMKK. Multimedia teaching materials are added to the curriculum, or all teaching materials are made more interactive using digital media. In Hadith learning, students are not only required to understand and memorize the Hadith being studied but also asked to create PowerPoint or Canva presentations and explain them through an Interactive Flat Panel (IFP) or smart TV. Similarly, science subjects are always integrated with technological approaches and religious moderation, where students are asked to visualize specific themes supported by available equipment.

c. Semester Credit System: Students with high learning speeds and specific qualifications will have the opportunity to complete their studies earlier. In this service, *Madrasah Diniyah* IBS PKMKK students have the same opportunity to complete learning in as little as 2, 3, or even 4 years for students who progress more slowly in completing their studies. For the yellow book reading material, the al-Fatih method students in the early grades of MDTW can master 65 *fashol* (sub chapter in learning arabic) in 4 months. To be declared pass in each material, students must be openly tested by teachers in front of all students and the dormitory supervisor. The same applies to Qur'an memorization subjects; graduation must pass eligibility tests and public exams. This also applies to other subjects such as Tajwid and literacy. If they have mastered one subject, they will be assigned tasks to become peer tutors and learn the next material. "Enjoy full learning" serves as the key to the Credit Semester System (SKS) learning service, with individual learning being its main characteristic using the Independent Learning Activity Unit.[19] Each teacher is granted complete freedom in managing the learning process. Billing for each subject is the responsibility of the teacher and is carried out by the students. When students create instructional videos related to a specific topic, such as a chapter on prayer, they work in groups to plan, execute, and evaluate the given task. The results of material-based video creation are assessed by

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[17] IBS PKMKK, "Meeting of Students and Parents of Multimedia Class at IBS PKMKK MTs Negeri 3 Pamekasan," 2023.
[18] Mohammad Holis, "Interview with the Director of Tasmi' the Quran at IBS PKMKK" (2023).
[19] Ibid.

multimedia and other subject teachers. In creating these videos, each student experiences joy as learning becomes less monotonous in the classroom. The best video results are showcased on IBS PKMKK's social media accounts.

d. Independent Curriculum: The curriculum used by *Madrasah Diniyah* IBS PKMKK is an independent and autonomous curriculum developed based on the needs and characteristics of the institution. The curriculum outcomes are also tailored to the use of digital technology.

The development of IBS PKMKK *Madrasah Diniyah* with the independent curriculum, as a continuation of the 2013 curriculum development, is a distinctive feature implemented through a block, thematic, and integrative learning model with clear and concrete learning achievement targets that align with the potential of the students studying in the madrasah. Block learning is provided for cultural arts, crafts, and even Indonesian language and multimedia subjects, ensuring that these subjects have specific targets. The Problem-Based Learning and Project-Based Learning models characterize the learning in this madrasah, adopting 21st-century learning that utilizes IT as a learning medium and is, of course, based on Literacy and Numeracy as one of the Higher Order Thinking Skills (HOTs) learning indicators.[20]

3. Digital Training for Teachers

To ensure the smooth operation of digital technology, teachers are also provided with training on how to use and leverage digital technology in teaching. On January 20, 2023, all teachers gathered in the lobby of IBS PKMKK and received training on the use of the Interactive Flat Panel (IFP) by the IBS PKMKK multimedia development team. Each teacher took turns operating the IFP owned by IBS PKMKK. Subsequently, independent training for teachers in using this digital media was conducted. Because the students have learned more about multimedia, their abilities surpass those of non-multimedia teachers. This form of training is continuously provided through self-learning and collaborative mentoring. Group communication spaces are optimally used so that all teachers can operate all the digital devices available at *Madrasah Diniyah* IBS PKMKK. The training includes the use of online learning applications or platforms, the use of social media for communication, and the use of software or applications to create interactive teaching materials.

4. Digital-Based Evaluation

Evaluation and assessment are also conducted digitally. The writing of students' learning outcomes can be directly input into the grading system created by *Madrasah Diniyah* IBS PKMKK. The presented learning outcomes do not include numerical values but are in the form of descriptions regarding the achievement of students' abilities or learning outcomes at the levels of highly satisfactory, satisfactory, and fairly satisfactory. At the end of each month, parents or guardians will receive a report on the overall achievements of the students, covering daily activities, worship activities, classroom learning, moral conduct, discipline, and cleanliness. This is intended to allow students or their parents to provide immediate feedback.

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[20] Ibid.

5. Collaboration with Third Parties

In implementation, *Madrasah Diniyah* IBS Padepokan Kyai Mudrikah also collaborates with third parties, such as technology companies or non-profit organizations, to receive support in using digital technology. In-depth discussions have repeatedly been held with digital and IT experts from Asus Corporate and Intel Corporate. These companies have visited *Madrasah Diniyah* IBS PKMKK three times.[21]

The development of the digital-based *Madrasah Diniyah* is not without challenges. For example, challenges related to technology infrastructure, teachers' skills in using technology, or resistance from students or parents to the use of technology in education. However, with strong commitment and the right strategies, these challenges can be overcome, and *Madrasah Diniyah* can successfully adapt to the digital era.

3.2. Technological Pedagogical Content Knowledge Theory

This theory, developed by Punya Mishra and Matthew J. Koehler, states that effective teachers are those who can integrate content knowledge, pedagogical knowledge, and technological knowledge. In the context of digital-based *Madrasah Diniyah*, teachers need to have knowledge and skills in using technology to teach religious materials. The Technological Pedagogical Content Knowledge theory is a crucial framework in the context of *Madrasah Diniyah* learning. This theory emphasizes the importance of integrating technological knowledge, pedagogical knowledge, and content knowledge in teaching and learning practices. A step in creating the integration of technology in the teaching-learning process is through the formation of the TPACK concept initiated by Koehler. TPACK can serve as a reference or guide for teachers in implementing technology in education. Studies conducted by Koh and Chai indicate that a teacher's TPACK knowledge and skills have an impact on the implementation of the learning process.[22]

In the context of *Madrasah Diniyah*, here are some reasons why the TPACK theory is crucial:

1. Enhancing Learning Effectiveness By applying the TPACK theory, *Madrasah Diniyah* teachers can design and implement learning strategies that integrate technology, effective pedagogical methods, and in-depth teaching materials. This can help improve students' understanding and retention of the curriculum, as well as motivate them to learn. The integration of all subjects can be done using technology and digital devices.

2. Preparing Students for the Digital Era Through the integration of technology in learning, *Madrasah Diniyah* can help students develop the necessary digital skills and literacy required in this digital era. This can assist them in achieving success in the future, both in an educational and career context.

3. Enhancing Learning Attraction and Interactivity The use of technology can make learning more engaging and interactive. For example, using digital

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[21] Achmad Muhlis, "The Development Team Discussing with IT and Digital Experts" (2022).

[22] Arindra Alfarizi and Bramastia, "Analysis of Teachers' Abilities in Designing TPACK-Based Learning in Civic Education Subjects at UPT Public Senior High School 3 Banyuasin" (Proceedings of the National Seminar on Science Education (SNPS) 2022: "The Dynamics of Science Learning in the Independent Curriculum, 2022), 137, https://repository.unsri.ac.id/67307/%0Ahttps://repository.unsri.ac.id/67307/3/RAMA_872 05_06051281722021_0005026703_0005037604_01_front_ref.pdf.

media, videos, or online learning applications, students can learn in a more interesting way compared to traditional teaching methods.

4. Facilitating Evaluation and Assessment Technology can also facilitate the evaluation and assessment process. For instance, teachers can use online applications or platforms to create questions and assess students' answers or to track students' learning progress. Each student has been equipped with a laptop as the implementation of the IBS PKMKK pillar, namely one student one laptop. Madin IBS PKMKK provides other supporting facilities such as Wi-Fi and all other digital equipment. At the beginning of each new academic year, all teachers are instructed to integrate learning with multimedia. Any material can be integrated using the technology equipment owned by *Madrasah Diniyah* IBS PKMKK. Each teacher designs and creates assignments for their respective classes based on the competencies and characteristics of the subjects. The best learning outcomes will be showcased on Madin IBS PKMKK's social media accounts. Overall, the TPACK theory can assist *Madrasah Diniyah* in adapting to and leveraging technology in learning, as well as designing and implementing effective and context-relevant learning strategies for students' needs.

3.3. Digital-Based Learning

Digital-based learning can be seen as the process of information retrieval, where multimedia messages serve as a means of information delivery, or as knowledge formation, where multimedia messages play a role in facilitating reasoning. The ultimate outcome of valuable and meaningful learning depends more on the mental activities of the students than their behaviors during the learning process.[23]

Digital-based learning refers to an approach to learning that utilizes digital technology to enhance the learning experience and effectiveness. Here are some key points that can be discussed in the context of digital-based learning in *Madrasah Diniyah*:

1. Technological Devices
   Technological devices such as computers, tablets, and smartphones play a crucial role in digital-based learning. They serve as a medium connecting teachers and students, facilitating access to online learning resources.

2. Digital Learning Platforms
   Various digital learning platforms, such as Google Classroom, Moodle, Edmodo, and others, can be utilized. These platforms help manage teaching materials, assignments, discussions, and evaluations online. Each student has a Google account to support their learning.

3. Digital Content
   Digital content includes e-books, videos, audio, infographics, online quizzes, and more. This content should be well-designed to support the learning process and engage students. The results of digital content created by students can be seen on all social media owned by *Madrasah Diniyah* IBS PKMKK and also on the website.

4. Learning Methods
   In digital-based learning, commonly used methods include blended learning (a combination of face-to-face and online learning),[24] flipped classrooms

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[23] Efendi, "Digital Learning Revolution (The Use of Digital Animation in Start-Ups as a Method for Active Student Learning)," 173.

[24] Azis Taufiq Nur, "Learning Strategies in the Digital Era," in *Annual Conference on Islamic Education and Social Sains (ACIEDSS)* (Jakarta, 2019), 309.

(students learn material at home and have discussions or practice in class), or fully online learning. The usual approach is blended learning.

5. 21st Century Skills

    Digital-based learning helps students develop 21st-century skills such as digital literacy, critical thinking, online collaboration, and self-directed learning.

6. In this era, information is rapidly evolving, widespread, free, and without geographical limitations. Teachers believe they must guide students to behave wisely in processing and responding to information. Teachers must support students in using social media correctly and utilizing technology ethically and in line with Eastern culture. Therefore, it is crucial for teachers to have IT skills.[25]

7. Teacher Training

    To implement digital-based learning, teachers need training on how to use technology and design effective learning. There are two models of training for teachers in mastering technology: classical training together and self-training, learning directly from the Multimedia Team, both face-to-face and using online media.

8. Challenges and Solutions

    There are various challenges in digital-based learning, such as inadequate technological infrastructure, insufficient teacher skills, or resistance from students or parents. Solutions to these obstacles need to be found and implemented. Until now, *Madrasah Diniyah* IBS PKMKK continues to innovate to overcome existing challenges gradually and systematically.

9. Evaluation and Assessment

    Evaluation and assessment in digital-based learning can be done in various ways, such as online quizzes, project assignments, or digital portfolios. Students are accustomed to various digital learning models.

Digital-based learning offers many opportunities and challenges. Therefore, good planning and implementation are needed to provide maximum benefits for students and teachers. The digital-based learning conducted by *Madrasah Diniyah* IBS PKMKK is a form of education that integrates independent curriculum, credit semester system, *Madrasah Diniyah* curriculum, and multimedia. *Madrasah Diniyah* IBS PKMKK has provided advanced technological equipment. Every teacher is required to integrate multimedia in the teaching process to improve the quality of learning. To enhance teachers' competency in technology utilization, training is conducted both classically and independently. Teachers are encouraged to use various teaching methods to make learning more enjoyable for students (enjoy full learning).

Despite some challenges in developing digital-based learning, such as declining student motivation due to the use of multimedia in every subject, the best works are recognized and published on social media, inspiring students to be more creative. Additionally, digital integration adds an interesting dimension to the learning process, stimulating student creativity. This is evident in the publication of books written by students with ISBN numbers, demonstrating their independent work. Materials can be accessed through various digital media platforms, allowing students to explore their abilities. Assessment provided by teachers is process-based and emphasizes each student's efforts in achieving

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[25] Retnaningsih Duwi, "Challenges and Strategies for Teachers in the Era of the Fourth Industrial Revolution to Improve the Quality of Education," in *Proceedings of the National Seminar: Policies and Development of Education in the Era of the Fourth Industrial Revolution* (Jakarta, 2019), 74.

learning goals. Tools like Quizzis and portfolios are used, and learning outcomes can be openly assessed by the community through social media accounts or by participating in each subject's exams. Currently, *Madrasah Diniyah* IBS PKMKK has developed the Smart School Platform in collaboration with Bank Shariah Indonesia to enhance digital services for students and stakeholders and empower the community's economy.

3.4 The Success of the digital-based Madrasah Diniyah development model at Madrasah Diniyah IBS PKMKK

Here is the evidence of the success of the digital-based *Madrasah Diniyah* development model at *Madrasah Diniyah* IBS PKMKK, as well as its relevance to local needs and contexts, as nearly 99 percent of *Madrasah Diniyah* IBS PKMKK students come from the surrounding village community. Additionally, the challenges and obstacles in its implementation:

1. Digital-Based *Madrasah Diniyah* Development Model at *Madrasah Diniyah* IBS PKMKK

The implementation of the digital-based development model at *Madrasah Diniyah* IBS PKMKK has brought about several positive changes. For instance, the use of digital technology in the teaching and learning process has assisted students in understanding the material better, with project-based learning. The subjects covered include CorelDRAW, Photoshop, CapCut, and Canva.

Figure 2. Abstract line products of *Madrasah Diniyah* IBS PKMKK students
Source: Document of IBS PKMKK

Furthermore, the results of the company profile design by students of *Madrasah Diniyah* IBS PKMKK in Figure 3.

Figure 3. Company Profile of IBS PKMKK
Source: Document of IBS PKMKK

It can be seen in Figure 3 that digital-based learning also enhances their digital literacy skills. Students need to learn about digital literacy, which is the ability of individuals to understand, use, and participate effectively in the digital world. Digital literacy skills include the ability to understand

information found online, recognize reliable sources of information, maintain online security, and use technology and digital tools to communicate, work, and participate in other online activities. Digital literacy is crucial in today's digital era to avoid the spread of misinformation, protect privacy, and use technology productively. Students must have the wisdom to sift through and choose information wisely to avoid falling into traps or becoming victims of misinformation.

After students go through the process of understanding literacy, with their ability to find accurate sources of information or knowledge, students are equipped to write. They edit their work and then compile it. Selected works will be published. Without the means of laptops and computers, literacy activities will face obstacles. Currently, students are also able to design their writings using applications like Canva and progress to flipbooks. This certainly enhances the digital literacy skills of students. Here are some literary works by students of *Madrasah Diniyah* IBS PKMKK, resulting in several books: "*Jejak Sebelas Bidadari: Berburu Invertebrata*" (The Trail of Eleven Angels: Hunting Invertebrates), "*Asyiknya Jadi Santri: Liburan* di Pesantren Camp" (The Joy of Being a student: Vacation at Pesantren Camp), "Mafiza Jawny," "*Dunia Pesantren*," "*Pernah Percaya Kemudian Menyerah*," "Hopefully Night," "*Bertasbih di Atas Debu*," and "*Tahya al-arabiyah fi Lisaani wa Kitaabati*". The documentation of books creation showcase can be seen in Figure 4.

Figure 4. Students Showcase Their Book Creations from the Literacy
Program at *Madrasah Diniyah* IBS PKMKK
Source: Document of IBS PKMKK

On its second anniversary, IBS PKMKK launched 9 books with the overarching themes of Islamic boarding schools and religious moderation. The titles include: Building Digital Literacy Civilization in the Land of Kembang Kuning, The Resonance of Stories in the Islamic Boarding School, The Sun of Religious Moderation in the Islamic Boarding School, Religious Moderation in the Islamic Boarding School: The Mahabbah Culture of Students, Religious Moderation: The Melody of Tawhid in Stories Full of Wisdom, Nurturing Hearts by Arranging the Puzzle of Student Life, The Blind Students: Stories of Students Full of Wisdom in the Depth of Religious Knowledge, The Love Circle of the Islamic Boarding School, and The Anthology of Religious Moderation Writing in the Islamic Boarding School. The list of the book is presented in Figure 5.

Figure 5. Nine books launched on the second anniversary of IBS PKMKK
Source: Document of IBS PKMKK

The launch of these nine books was a part of the second-anniversary celebration of IBS PKMKK. The digital learning environment has motivated students to engage in independent learning. Various student works can be explored on platforms such as YouTube: https://www.youtube.com/@padepokankyaimudrikah, Instagram: Padepokan KyaiMudrikah (@padepokankyaimudrikah_), and all IBS PKMKK activities can be accessed at https://padepokankyaimudrikah.net/landing.

Moreover, the use of online learning platforms has facilitated communication and collaboration between teachers and students, as well as streamlined class management and assessment processes. Currently, for digital learning at *Madrasah Diniyah* IBS PKMKK, there are 2 cameras with gimbals, 5 action cameras with gimbals and tripods, 30 laptops, and 6 pen tablets and antions."

2. Alignment of Digital-Based Madrasah Development with Local Needs and Context

The implementation of the digital-based development model at *Madrasah Diniyah* IBS PKMKK aligns with local needs and context. For instance, the curriculum and teaching materials developed not only focus on religious subjects but also include general content relevant to the daily lives of the students. Additionally, digital teacher training has been tailored to the skill levels and existing knowledge of the teachers. There are two types of training provided to the teachers: classical training and self-directed training. Classical training is conducted based on specific needs; for example, if new digital equipment arrives, all teachers are taught together (training on the use of smart TVs and IFPs). Meanwhile, self-directed training can be done incidentally according to the needs of each teacher, such as training in designing books using the Canva application. This demonstrates that *Madrasah Diniyah* IBS PKMKK has understood and responded well to local needs and context in the implementation of the digital-based development model. As a Madrasah located on the island of Madura, students are introduced to various cultures and noble values of Madurese culture to ensure they do not lose their essential identity. Although there are currently students who are not from Madura, they are still taught about Madurese culture, especially regarding the context of respect for Bupha-Babu', Ghuru, and Ratoh.

3. Challenges and Obstacles in Implementation

Despite bringing many benefits, the implementation of the digital-based development model at *Madrasah Diniyah* IBS PKMKK has also encountered several challenges and obstacles. For example, there are challenges related

to technology infrastructure, such as the availability of devices and sufficient internet connectivity for all students and teachers. Additionally, there are challenges in terms of the skills and interest of teachers and students in using technology, as well as resistance from some parents regarding the use of technology in education. To overcome these challenges, *Madrasah Diniyah* IBS PKMKK needs to consider various strategies, such as collaborating with third parties to obtain infrastructure support, providing advanced training for teachers and students, and conducting socialization and education for parents of students.

Flowchart of the Digital-Based Development Model at *Madrasah Diniyah* IBS PKMKK can be seen in Figure 6.

Figure 6. Flowchart Digital-Based Development Model *Madrasah Diniyah*
Source: Document of IBS PKMKK

It can be seen from Figure 6 that there are seven stages. The stages are:

1) Needs Analysis: *Madrasah Diniyah* IBS PKMKK has conducted an evaluation of the digital needs of the *Madrasah Diniyah* based on the curriculum, student requirements, and available technology.
2) Planning: *Madrasah Diniyah* IBS PKMKK has planned the digital system, including learning applications, online learning platforms, necessary hardware and software, and training needs for teachers.
3) Development: Building or implementing the digital system. This may involve creating applications, setting up learning platforms, and acquiring necessary hardware and software.
4) Training: Training teachers and staff on how to use the digital system and related technologies.
5) Implementation: Implementing the use of the digital system in day-to-day learning.
6) Evaluation: Assessing the effectiveness of the digital system in improving the teaching and learning process and making adjustments if necessary.
7) Improvement and Updates: Making improvements and updates to the digital system based on evaluations and feedback from users.

Islamic Takmiliyah Madrasah is a non-formal Islamic educational institution that is currently growing rapidly in the community, especially in

areas where the majority of the population is Muslim.[26] This educational institution plays a significant role in achieving the goals of national education as stipulated in Law No. 20 of 2003 concerning the National Education System. Additionally, the Takmiliyah Madrasah is one of the Islamic educational institutions that has contributed to nurturing and preserving Islamic teachings through its specialized subjects in the curriculum. The subjects are divided into two categories: religious subjects, including (Qur'an, Hadith, Aqidah, Morality, Fiqh, Islamic History, and Arabic Language), and Local Content, including Pegon Arabic, Imla', and also multimedia.[27]

As an Islamic educational institution, *Madrasah Diniyah* has the task of creating a community that firmly adheres to religious morality. Therefore, *Madrasah Diniyah* must develop a more modern, high-quality, and adaptive religious education in line with technological and informational advancements. This is because the role of religion is crucial in the development of the nation's mentality, with the primary focus being on the development of religious education and a strong understanding of religious values.[28]

Madrasah Diniyah IBS PKMKK offers one model of non-formal Islamic educational institution development that integrates the content of religious curriculum with technology. The digitization of learning is one way to enhance the image of *Madrasah Diniyah* as a more modern, quality, and competitive institution. With technological proficiency, *Madrasah Diniyah* can contribute to realizing Islam as a religion that benefits the entire universe. The emergence of this model of *Madrasah Diniyah* can inspire and motivate other *Madrasah Diniyah* to develop their teaching methods, strengthening the existence of *Madrasah Diniyah* as the best alternative education.

4. Conclusion

The development model of the digital-based *Madrasah Diniyah* at *Madrasah Diniyah* IBS PKMKK brings significant advantages in integrating technology into education. Digital technology facilitates more interactive, engaging, and efficient learning. Online learning platforms also support structured class management and learning evaluations. This model is relevant to local needs and contexts, even in rural areas. This *Madrasah Diniyah* becomes a digital education oasis in a village community that previously did not prioritize quality education. Despite its benefits, the implementation of this model faces challenges such as technological infrastructure, skills of teachers and students, and resistance from certain parties. To overcome these challenges, improvements in infrastructure, training for teachers and students, as well as outreach to parents and the community are necessary. This research indicates that the development of a digital-based *Madrasah Diniyah* is a crucial and relevant initiative in this digital era. With the right strategies, *Madrasah Diniyah* can adapt technology to achieve more effective and efficient educational goals.

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[26] Directorate of Religious and Islamic Boarding School Education, "Guidelines for the Implementation of Takmiliyah *Madrasah Diniyah*." (2023), 1.

[27] Ibid., 25.

[28] Fathor Rachman and Ach. Maimun, "*Madrasah Diniyah* Takmiliyah (MDT) as a Center of Religious Knowledge in Rural Communities (Study on the Role of MDT in Gapura Timur Village, Sumenep)," *'Anil Islam* 9, no. 1 (2016): 63.

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