

Analysis of *Google Workspace for Education* Implementation in Islamic Education Learning in Madrasahs

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Abstract: The advancement of digital technology has brought significant changes in the world of education, including in learning Islamic Religious Education (PAI) in madrasah. One of the platforms that is widely used in supporting technology-based learning is Google Workspace for Education. This study aims to analyze the implementation of Google Workspace in Islamic Education learning in madrasah by looking at various educational institutions that have implemented it, with a library research approach. Data were collected from various academic journals and trusted sources to explore the benefits, challenges, and optimization strategies in using this platform. The findings reveal measurable impacts: student cooperation increased from 0% in the pre-action stage to 33% in cycle I, 83% in cycle II, and finally 100% in cycle III after the use of Google Docs as reported by Gozali. Teacher participation in digital training reached 65% based on Darusman's study, and learning outcomes using Google Meet achieved 62.22% in the 'very good' category according to research by Arsyad and Tobing. The results show that Google Classroom, Google Meet, Google Docs, Google Forms, and Google Drive have important roles in supporting more interactive and collaborative learning. However, some of the main challenges faced include limited internet access, lack of digital literacy among teachers and students, and constraints in online-based evaluation systems. Overcoming these obstacles

requires continuous teacher training, provision of adequate infrastructure and development of learning methods that suit the needs of the madrasah. The implication of this study shows that the application of Google Workspace in PAI can improve learning effectiveness if supported by appropriate policies and adequate technological readiness. The results of this study are expected to be a reference for madrasahs in developing more effective and sustainable Islamic education digitization strategies.

Keywords: Google Workspace for Education, Islamic Religious Education, Madrasah, Educational Technology, Digitalization of Learning.

Abstrak: Majunya teknologi digital telah membawa perubahan signifikan dalam dunia pendidikan, termasuk dalam pembelajaran Pendidikan Agama Islam (PAI) di madrasah. Salah satu platform yang banyak digunakan dalam mendukung pembelajaran berbasis teknologi adalah Google Workspace for Education. Penelitian ini bertujuan untuk menganalisis implementasi Google Workspace dalam pembelajaran PAI di madrasah dengan melihat ke berbagai institusi pendidikan yang telah menerapkannya, dengan pendekatan kajian pustaka (library research). Data dikumpulkan dari berbagai jurnal akademik dan sumber terpercaya untuk mengeksplorasi manfaat, tantangan, serta strategi optimalisasi dalam penggunaan platform ini. Temuan penelitian menunjukkan dampak yang terukur: kerja sama siswa meningkat dari 0% pada tahap pra-tindakan menjadi 33% pada siklus I, 83% pada siklus II, dan akhirnya 100% pada siklus III setelah penggunaan Google Docs sebagaimana dilaporkan oleh Gozali. Partisipasi guru dalam pelatihan digital mencapai 65% berdasarkan penelitian Darusman, dan hasil belajar menggunakan Google Meet mencapai 62,22% dalam kategori 'sangat baik' menurut penelitian Arsyad dan Tobing. Hasil penelitian menunjukkan bahwa Google Classroom, Google Meet, Google Docs, Google Forms, dan Google Drive memiliki peran penting dalam mendukung pembelajaran yang lebih interaktif dan kolaboratif. Namun, beberapa tantangan utama yang dihadapi meliputi keterbatasan akses internet, kurangnya literasi digital di kalangan guru dan siswa, serta kendala dalam sistem evaluasi berbasis daring. Untuk mengatasi hambatan ini, diperlukan pelatihan guru secara berkelanjutan, penyediaan infrastruktur yang memadai, serta pengembangan metode pembelajaran yang sesuai dengan kebutuhan madrasah. Implikasi penelitian ini menunjukkan bahwa penerapan Google Workspace dalam PAI dapat meningkatkan efektivitas pembelajaran jika didukung dengan

kebijakan yang tepat dan kesiapan teknologi yang memadai. Hasil kajian ini diharapkan dapat menjadi referensi bagi madrasah dalam mengembangkan strategi digitalisasi pendidikan Islam yang lebih efektif dan berkelanjutan.

Kata Kunci: Google Workspace for Education, Pendidikan Agama Islam, Madrasah, Teknologi Pendidikan, Digitalisasi Pembelajaran

Introduction

The advancement of technology has brought significant changes in various fields, including the field of Islamic education. In the realm of madrasah, the use of technology is an important need to answer the challenges of the times and improve the quality of learning. As stated in the regulation of the Minister of National Education Number 16 of 2007, the use of technology is one of the core competencies possessed by teachers (Alia & Siagian, 2020). The use of technology in madrasah opens up many opportunities and spurs for various kinds of new innovations in Islamic Education, including expanding access to learning, enriching more creative and innovative teaching methods, and providing more diverse resources for students and teachers. Along with the rapid advancement of technology, Islamic education should not only be a user and recipient of information but also must provide provisions for them to be able to process, adjust, and develop what they receive, so that they remain relevant and effective in producing a generation that is ready to face global challenges, namely by involving technology in their teaching (Kusumawati, 2023).

A tangible manifestation of the rapid development of technology is the emergence of many *digital platforms* used by educational institutions. One example of a *digital platform* that is often used in the realm of education is *Google Workspace for Education*, formerly known as *Google Suite for Education*. *Google Workspace for Education* is an application from Google such as *Google Classroom*, *Google Drive*, *Google Docs*, and *Google Meet* which functions as a productive, collaborative tool, and in which cloud-based storage is provided which can be utilized by educational institutions to support the learning process. The use of *google workspace for education* requires an internet connection, web browser and mobile devices, such as android, IOS, and Windows (Marlina, 2021).

By using this *digital platform* for Islamic Education (PAI) learning, it can make it easier for madrasahs to manage learning more structurally and efficiently, which can allow teachers to provide materials, assignments, and direct feedback that students can access anytime and anywhere. *Google Workspace for Education* is one of the ideal solutions for planning, organizing, implementing, monitoring, and evaluating for Islamic religious education carried out by madrasahs (Salsabila et al., 2023), because it provides complete features according to the needs of teachers engaged in education. In addition, *Google Workspace for Education* also plays a role in helping to shape student character because its use allows collaboration between students and students and students with teachers in completing assignments and projects. Of course this can also improve the ability to communicate and work together with groups.

The application of Google Workspace in learning Islamic Religious Education (PAI) will produce a variety of learning innovations that are more interesting and creative, thus improving the overall quality of learning. One approach that can be used is to integrate various interactive features offered by this platform (Ambarwati et al., 2022). For example, teachers can utilize Google Slides to create engaging and informative presentations, equipped with relevant videos, images, and graphics. In addition, the use of Google Forms for quizzes and surveys can provide immediate feedback to

students, helping them to provide an evaluation of learning and be able to see the extent of their understanding of the material that has been given.

The utilization of *Google Workspace for Education* in Islamic Religious Education (PAI) in madrasahs will bring many benefits, but it still requires more comprehensive research on its implementation pattern. Although many studies have discussed the advantages of this technology in education, each madrasah has different infrastructure conditions and readiness levels in adopting the technology. However, previous research has not specifically examined how Google Workspace for Education is implemented in Islamic Religious Education (PAI). Most existing research focuses on its use in general subjects, leaving little understanding of its application in faith-based learning environment. Therefore, in-depth analysis through academic journals is needed to understand the most effective implementation pattern, considering that differences in resource readiness and institutional support can affect the success of Google Workspace implementation in Islamic Education learning in madrasah.

In addition, the successful implementation of Google Workspace in PAI does not only depend on the technology itself, but is also influenced by various supporting and inhibiting factors. Factors such as educators' readiness, access to technological devices, and school policies are important aspects in determining the effectiveness of using this platform (Hafid & Barnoto, 2022). Existing literature studies show that Google workspace that supports learning will be more optimal if supported by several factors as mentioned. Infrastructure and madrasah policies also play an important role in the success of technology integration in Islamic education in madrasah. Then things that hinder such as the lack of education of Educators such as teachers about technology is also a major factor inhibiting the application of technology in learning (Nurcahyoko et al., 2024). Therefore, further analysis is needed to understand how these various factors interact with each other and form a good synergy in the process of technology implementation in madrasah.

In addition, collaboration in learning is one of the main aspects that is expected to be improved through the use of this technology. The presence of technology is expected to improve this, so it needs to be well ascertained how to use it to be more optimal. Collaboration between students and teachers is an important element in creating a more interactive and efficient learning environment (Irawan et al., 2024). In other words, there is still a need for further study on how the use of *Google Workspace* can really improve student collaboration in PAI in madrasah.

This study aims to analyze the implementation of Google Workspace for Education in Islamic Religious Education (PAI) within madrasahs, focusing on its benefits, challenges, and strategies for optimizing collaborative learning. Through a library research approach, the study examines how this technology influences student engagement, teacher collaboration, and the overall effectiveness of PAI learning management. The findings are expected to provide practical insights for madrasahs and other educational institutions in formulating more effective strategies for integrating digital tools into faith-based education.

Methodology

This research applies a qualitative approach using the library research method. The study focuses on analyzing how Google Workspace for Education can be implemented in Islamic Religious Education (PAI) learning within madrasahs. A total of 18 journal articles published between 2019

and 2024 were reviewed. Most of the sources originated from general education studies that explored the use of Google Workspace in schools and universities. These studies were then critically examined and interpreted to understand how their findings could be adapted to the context of Islamic education. Data were collected from reputable academic databases such as Google Scholar, ResearchGate, DOAJ, and Scholar.

The data were analyzed using thematic content analysis, which involved identifying recurring ideas, grouping them into main themes, and drawing connections between them. The analysis focused on three major aspects: benefits, challenges, and optimization strategies in implementing Google Workspace for Education. The synthesis process aimed to compare the results between general education settings and Islamic learning environments, highlighting how technology-based practices can be contextualized to support interactive and collaborative learning in PAI. The results of this analysis serve as a foundation for understanding how digital tools originally designed for general education can effectively enhance Islamic education in madrasahs.

Results and Discussion

1. Google Workspace for Education service

This study analyzes the various applications of *Google Workspace for Education* in learning Islamic Religious Education (PAI) in various school institutions. Various studies show that the utilization of digital technology in Islamic education is increasing rapidly, especially after the COVID-19 pandemi (Mukminah et al., 2021) . which has accelerated the adoption of digital learning. This phenomenon aligns with constructivist learning theory, where learners actively construct knowledge through technology-supported experiences rather than receiving it passively from teachers (Ulya, 2024). Some schools have implemented *Google Workspace for Education* to improve teaching effectiveness, although there are still some obstacles in its implementation.

By understanding the services offered by *Google Workspace for Education*, it can help optimize its application in learning Islamic Religious Education (PAI) in madrasahs. According to Yasyakur, *Google Workspace for Education* is a device created by Google, which can be used by educational institutions such as schools or madrasahs to collaborate, help with administration, and store files to keep them safe and private. It was also mentioned that *Google Workspace for Education* provides several options to meet the needs of its users, such as the following points;

- a. Google Workspace for Education Fundamentals provides a variety of tools that support the learning process, including the apps Classroom, Google Meet, Google Docs, Google Forms, and Google Chat.
- b. Google Workspace for Education Standard is similar to Education Fundamentals, but offers more advanced security features and better administrative controls. This edition helps educational institutions protect data and privacy from digital threats with more effective analysis tools and protection mechanisms.
- c. Teaching and Learning Upgrade offers enhanced video communication capabilities, additional features for Classroom, and a wider range of tools than the Education Fundamentals or Education Standard editions. The upgrade is designed to enrich the teaching and learning experience, enable better interaction between educators and students, and improve efficiency in classroom management.

- d. Google Workspace for Education Plus includes all the features in the Education Standard and Teaching and Learning Upgrade, and adds new services such as attendance tracking in Google Meet. This edition aims to provide more tools that support interaction and collaboration in learning.

Education Fundamentals can be accessed for free by all institutions that meet certain criteria. Meanwhile, paid subscriptions are required for the Education Standard, Teaching and Learning Upgrade, and Education Plus editions (Yasyakur, 2023).

2. Google Workspace Application Implementation

To understand the extent of the effectiveness of Google Workspace for Education in PAI learning, this study will examine using a literature study on how the application patterns of several school agencies that use *Google Workspace for Education* in the success of educational goals and the continuity of effective education in their respective schools. Which can then be analyzed which one is the most effective in the application of PAI learning in the madrasah. The following are the results of the assessment of the effectiveness of the use of *Google Workspace for Education* in several schools using literature studies.

Before discussing each Google Workspace application in detail, it is essential to emphasize the empirical foundation that supports the adoption of these tools. (Ayanwale et al., 2024), in their Scopus-indexed study published in *Heliyon*, found that perceived usefulness, institutional facilitation, and teachers' self-efficacy significantly influence educators' intention to use Google Workspace for teaching and assessment. Their research demonstrates that the effectiveness of Google Workspace integration depends strongly on structured training and organizational support. Building on these findings, the following sections describe how each Google application (Classroom, Meet, Docs, Forms, and Chat) has been applied in both general and Islamic educational settings, highlighting its benefits, challenges, and optimization strategies.

a. Google Classroom

Google Classroom is an application designed by Google for online learning, making it easier for educational institutions to carry out the teaching and learning process anytime and anywhere without being hampered by distance or time (Izzati, 2021).

Several educational institutions have implemented Google Classroom as the main platform in various subjects. Google Classroom is used for e-learning. This service can only be used by educational institutions registered with *Google Apps for Education*, and each user must have a Google account. Educators or teachers can upload learning materials and distribute assignments to students on schedule, while students who have registered, either independently or through lecturers as admins, can access, download, and work on assignments given online (Qomariah et al., 2019).

A study by (Darusman et al., 2019) conducting community service with Google Classroom Training to teachers at a Junior High School in Subang showed that many teachers, including English teachers, were not familiar with this platform. The implementation of Google Classroom to improve the effectiveness of English learning begins with training on how to create an account, upload materials, and give assignments. In English learning, Google Classroom is used to share text, audio, and video materials to improve learners' reading, listening, and grammar and vocabulary skills.

After the training, teachers began utilizing Google Classroom to give essay assignments, grammar exercises, and interactive discussions through the comments feature. Integration with Google Docs and Google Forms also makes it easy to provide exercises and feedback quickly. In addition, the flipped classroom method is applied, where learners access materials before class, making face-to-face sessions more effective. Google Classroom also helps teachers store student assignment data centrally to monitor their progress.

However, in the implementation of Google Classroom, the main problem is the unstable internet connection, which hinders access and interaction. However, the problem can be solved by the trainer providing the internet network through hotspots, therefore, schools need to ensure a supportive technology infrastructure so that Google Classroom can be optimally implemented in English learning. With these data, it can be seen that the implementation of Google Classroom can increase student engagement in online discussions and assignments. Features such as assignments, automatic grading, and discussion rooms help teachers to manage learning more systematically.

The data obtained from the above research activities is that out of 20 lecturers who received invitations, only 13 lecturers attended, which means the attendance rate was 65%. Although it has not reached 100%, this figure shows a fairly good participation, and further efforts can be made to increase attendance in the next activity.

Then the research conducted by (Ashoumi & Shobirin, 2019) displays results that are more relevant to the title of this research, because it discusses the use of google workspace in Islamic religious education. The implementation of Google Classroom in learning Islamic Religious Education (PAI) in madrasah with a structured and technology-based approach shows satisfactory results. In the implementation pattern, the lecturer first prepares a learning plan for one semester, consisting of 14 meetings with 4 face-to-face meetings. Students are divided into small groups, each of which is responsible for uploading a group assignment, three hours before the discussion begins. This allows students to learn the material earlier and participate in the discussion more actively.

Ashoumi and Shobirin have explained how Google Classroom is implemented in PAI learning, namely through various features provided by Google Classroom, such as *Create Assignment* to give assignments, *Create Question* to facilitate discussions, and *Create Announcement* for important announcements. In addition, attendance is recorded using the Academic Information System (AIS) integrated with this platform, covering both face-to-face and virtual meetings. This pattern encourages discipline and more intense interactions, as well as increasing participation of students who are more confident in expressing their opinions.

Some of the literature studies above can be a reference for madrasahs in their efforts to implement Google Classroom for Islamic Religious Education (PAI) learning. By training teachers in the use of Google Classroom, they can manage digital classes in a more interactive, structured, and relevant way, as well as facilitate discussions and religious reflections through the available features. In addition, adequate technological infrastructure support, such as stable internet access and digital literacy training for educators, are key factors in ensuring the successful implementation of Google Classroom in madrasah. Thus, the utilization of technology in PAI learning not only increases teaching effectiveness but also encourages student engagement in understanding Islamic values in a more interactive and contextual

manner. This finding supports constructivist learning theory, where students actively build knowledge through exploration and teacher-guided digital interaction rather than merely receiving information passively.

b. Google meet

The application of Google Meet in Islamic Religious Education online learning at SMP Negeri 31 Semarang aims to overcome the limitations of interaction between teachers and students that have an impact on learning interest and mentoring process. Although learning is done remotely, this platform allows teachers and students to interact directly through video conferencing, so that the need for socialization in the learning process can still be met. This shows that the selection of Google Meet as a digital learning media is a strategic step in optimizing PAI learning during the distance learning period (Beno et al., 2022) .

The data shows that the application of Google Meet as a digital learning media at SMP Negeri 31 Semarang is a solution to overcome the limitations of interaction in online learning in PAI subjects. The selection of Google Meet is based on its easy accessibility through various devices and its popularity as the second most popular distance learning platform in Indonesia after Zoom Meeting based on the Arus Survei Indonesia survey in October 2020. Although online learning brings challenges in terms of student interaction and interest in learning as well as teacher difficulties in mentoring and assessment, the use of Google Meet is expected to facilitate students' socialization needs in the PAI learning process.

Based on research conducted at IKIP PGRI Bojonegoro, especially in learning economics courses in the level 3 Economics Education study program, the application of Google Meet has been implemented systematically with a structured learning pattern. Lecturers begin learning by building student motivation, followed by material delivery using interactive PPT and question and answer sessions to explore student understanding. In the process, the lecturer utilizes the comment column feature for discussion and provides assignments to elaborate on student abilities. Which then the lecturer gives assignments as a way for students to explore the material that has been provided themselves (Farid, 2021)

Farid revealed that the implementation of Google Meet shows several benefits, including the availability of complete instruments for online learning, efficient use of quota, the ability to operate on a relatively stable network, and the ease of facilitating distance learning during the pandemic. However, the implementation also faces several challenges such as signal interference that sometimes occurs, limited memory of student devices, reduced direct interaction between lecturers and students, difficulty in monitoring the seriousness of student learning, and limited online learning support facilities. Despite the challenges, the use of Google Meet still shows its effectiveness in supporting interactive and structured online learning.

Meanwhile, research conducted by (Arsyad & Tobing, 2021) shows how effective the use of Google meet is on campus C IKIP Budi Utomo in the form of a table by revealing the learning outcomes of History Education and Sociology study program students by collecting data using a questionnaire.

Table 1. Student Learning Outcomes

Success Rate	Learning Outcome Category	Number of Students	Percentage (%)
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>80	Very good	28	62,22%
79-60	Good	17	37,77%
59-40	Simply	-	-
39-20	Less	-	-
<20	Less than Once	-	-
Number of Students		45	

Based on the table above, student learning outcomes show that 62.22% of students are in the excellent category with scores above 80, while 37.77% of students are in the good category with scores between 60-79. There are no students who get scores in the sufficient, poor, or very poor categories. This indicates that the majority of students in the History and Sociology Education Study Program at the Faculty of Social Science Education and Humanities IKIP Budi Utomo obtained satisfactory learning outcomes even though lectures were conducted online using the Google Meet application during the COVID-19 pandemic. This data shows that the pandemic situation does not hamper students' enthusiasm for learning, and they can still study well from various places such as homes, cafes, and village halls, in accordance with the guidelines issued by the government.

The application of Google Meet in PAI learning in madrasas can adopt a pattern similar to the case of economic learning at IKIP PGRI Bojonegoro, where PAI teachers can start learning by providing motivation, followed by the delivery of material through interactive PPT or learning videos about PAI, and ending with question and answer sessions and assignments. Especially for PAI learning, Google Meet can be optimized for worship practices, Quran learning, and interactive discussion of Islamic values. Its popularity is evident from the results of the Arus Survei Indonesia survey in October 2020 which placed Google Meet as the second most popular distance learning platform after Zoom Meeting.

To overcome the challenges in the previous study, several solutions can be applied such as: selecting a good network operator or wifi and optimizing the learning schedule when the network is stable to overcome connection problems, using cloud storage to overcome memory limitations, increasing interaction through a variety of learning methods such as small group discussions and student presentations, implementing an active monitoring system through periodic questions and quizzes to ensure student activeness, and collaborating with school committees and stakeholders to provide adequate online learning support facilities. With the right infrastructure support and planned learning strategies, Google Meet can be an effective platform for PAI learning in madrasah, enabling the achievement of learning objectives even though it is conducted remotely.

c. Google Docs

Google documents or Docs is an application provided by Google, which allows users to access all documents anytime and anywhere. (Fathimah et al., 2020)

Research conducted by (Gozali, 2020) at SDN 3 Wadas, Plantungan District, Kendal Regency, with the object of research being six fifth grade students. Before the research action, the researcher observed online learning and found several shortcomings in its application, such as learning activities carried out individually and lack of collaboration between students. The

tasks given tend to look at the results, which causes students to become individualistic and reduce the values of togetherness. To improve collaboration between students in online learning, researchers implemented the use of Google Docs application as a tool to work on the Learner Worksheet (LKPD).

In the implementation pattern, each student is asked to collaborate in completing group assignments through Google Docs, where they can discuss with each other and provide real-time feedback. By utilizing the comments and conversation features in the application, students were encouraged to actively interact and share responsibility in completing the task. The results showed a significant increase in student cooperation after the implementation of this action. The following table illustrates the achievement of student cooperation indicators over three cycles:

Table 2. learning achievements

No.	Description	Before Action	After the action		
			Cycle I	Cycle II	Cycle III
1	Students who reach the limits of the cooperation indicator in filling out the LKPD	0 students (0%)	2 students (33%)	5 students (83%)	6 students (100%)
2	Students who have not reached the limits of the cooperation indicator in filling out LKPD	6 students (100%)	4 students (67%)	1 student (17%)	-

The results showed that there was a significant increase in student cooperation after the application of LKPD assisted by Google Docs. Before the action, none of the students achieved the cooperation indicator, but after the action in cycle III, all students successfully met the indicator. This indicates that the use of Google Docs is effective in improving cooperation among students during online learning.

The problem of implementing online learning in general has the same problems as those experienced at SDN 3 Wadas, namely the emergence of individualized learning. Likewise, in the application of PAI Learning in various madrasas experiencing the same problem, therefore the above research can provide a concrete solution in solving the problems experienced, namely by applying Google Documents in PAI learning. An example that can be applied in PAI learning is that the teacher can divide groups to work on assignments such as writing exemplary stories of prophets, analyzing verses and hadith, or preparing papers on the fiqh of worship. In the process, students utilize the real-time collaboration feature to discuss the interpretation of verses, Islamic law, and coordinate in the division of group tasks. Thus, it is expected to optimize PAI learning in various madrasas. This aligns with collaborative learning theory, which highlights that meaningful knowledge is developed through teamwork, peer feedback, and collective problem solving key aspects supported by Google Docs real time features (Rahmi, 2024).

d. Google Forms

Google Form or form is software from Google that is used to help plan an event, provide questionnaires, send students or other people questions, or to collect easy information in a fast way (Mulatsih, 2020)

SMK Pembina Bangsa Bukittinggi has implemented Google Forms as a learning evaluation tool at SMK Pembina Bangsa Bukittinggi systematically to improve the effectiveness of PAI subject assessment. The process starts with the creation of an evaluation form in Google Drive, then it is converted as a quiz in order to automatically collect and score students' answers. Settings such as a one-response limit, randomized display of questions, and inclusion of student identities were applied to improve the validity and security of the evaluation (Pratama et al., 2024)

Pratama revealed that the implementation can be implemented by sharing the Google Form link through WhatsApp groups or others, after shortening it using the Bitly service, making it easy to access for students through their devices. Students work on the questions directly on Google Form with various question formats, including multiple choice and essay. After submitting the answers, evaluation results can be obtained immediately if the "Release grades immediately after submission" option is enabled.

The utilization of Google Form at SMK Pembina Bangsa Bukittinggi shows its effectiveness in facilitating fast, flexible, and accurate online evaluations. Teachers can easily monitor and analyze the evaluation results through the response menu and download them in Excel format. This implementation proves that technology can be optimized to improve the quality of PAI learning assessment, especially in situations that demand flexibility such as online learning.

The application of Google Forms in PAI learning evaluation at SMK Pembina Bangsa Bukittinggi can be a reference for various madrasahs in adopting digital-based evaluation methods. With a flexible, efficient, and accessible system, madrasahs can utilize this technology to improve the quality of online and offline evaluations. In addition to making it easier for teachers to compile and analyze exam results, the use of Google Forms also helps students to practice working on questions independently with instant feedback. The implementation of Google Forms also promotes digital literacy, as students and teachers become familiar with using online tools for assessment, data analysis, and feedback skills essential for 21st-century learning. The implementation of Google Forms also promotes digital literacy, as students and teachers become familiar with using online tools for assessment, data analysis, and feedback skills essential for 21st century learning (Palinsar, 2012; Tinmaz et al., 2022).

e. Google chat

Google Chat enables more organized interactions in both private conversations and workgroups. With direct file sharing features through Google Docs, Sheets, and Slides, users can discuss and complete tasks without switching platforms. In addition, integration with Gmail allows direct access to Chat features in one place, making communication more efficient (Irvan et al., 2021).

In PAI learning in madrasah, Google Chat can be applied as a medium for discussion and coordination between students and teachers. For example, teachers can form a special group

for Islamic studies, where students discuss verse interpretations, hadith, and fiqh materials. In addition, group assignments such as writing or digital da'wah projects can be done collaboratively with the document sharing feature. Thus, google chat in PAI learning can increase its effectiveness. This interaction exemplifies Vygotsky's social constructivism, where communication and cooperation form the basis for cognitive and moral growth reflecting Islamic educational values of ukhuwah and mutual assistance in learning (Palincsar, 2012).

Conclusion

The implementation of Google Workspace for Education has significantly enhanced the effectiveness of learning Islamic Religious Education (PAI) in madrasahs. Each application offers distinct advantages, such as Google Classroom for efficient learning management, Google Meet for live interactions, Google Docs for student collaboration, Google Forms for streamlined evaluation, and Google Chat for effective communication. Despite challenges like internet connectivity and device limitations, when implemented with proper infrastructure and adequate teacher training, these tools can optimize PAI learning, fostering increased student participation, collaboration, and improved learning outcomes. For more optimal implementation, madrasahs must prioritize teacher training, the provision of sufficient infrastructure, and the selection of learning strategies tailored to the unique characteristics of PAI. By leveraging these technologies effectively, madrasahs can provide more interactive, relevant, and impactful religious education, aligning with the demands of the digital era. However, while this study offers valuable theoretical insights, future research should focus on empirical investigations to validate these findings in real-world classroom settings. Direct field studies in madrasahs are needed to examine how Google Workspace applications affect student engagement, motivation, and learning outcomes. A mixed-methods approach, combining quantitative measurements of learning effectiveness with qualitative observations, could provide a comprehensive understanding of both the pedagogical and spiritual aspects of digital learning. Additionally, experimental studies comparing traditional and technology-based instruction methods could offer insights into the most effective integration model for Google Workspace in PAI, facilitating deeper understanding and value-based learning. Such empirical evidence would further enrich and refine theoretical frameworks for digital religious education.

Reference

- Alia, N., & Siagian, N. (2020). Penggunaan Teknologi Informasi dan Komunikasi Di Madrasah Aliyah Negeri 1 Sukabumi. *Penamas: Jurnal Penelitian Agama Dan Masyarakat*, 33(1), 57–76.
- Ambarwati, D., Wibowo, U. B., Arsyiadanti, H., & Susanti, S. (2022). Studi Literatur: Peran Inovasi Pendidikan pada Pembelajaran Berbasis Teknologi Digital. *Jurnal Inovasi Teknologi Pendidikan*, 8(2), 173–184. <https://doi.org/10.21831/jitp.v8i2.43560>
- Arsyad, M. N., & Tobing, S. M. (2021). Implementasi Pembelajaran Daring Berbasis Google Meet pada Mahasiswa IKIP Budi Utomo Malang. *Jurnal Nalar Pendidikan*, 9(1), 24–29.
- Ashoumi, H., & Shobirin, M. S. (2019). Penggunaan Google Classroom pada Mata Kuliah PAI. *JoEMS (Journal of Education and Management Studies)*, 2(4), 29–34.
- Ayanwale, M. A., Molefi, R. R., & Liapeng, S. (2024). Unlocking educational frontiers: Exploring higher educators' adoption of google workspace technology tools for teaching and assessment in Lesotho dynamic landscape. *Heliyon*, 10(9), e30049. <https://doi.org/https://doi.org/10.1016/j.heliyon.2024.e30049>

- Beno, J., Silen, A. P., & Yanti, M. (2022). KORELASI APLIKASI GOOGLE MEET DENGAN MINAT BELAJAR SISWA PADA PELAJARAN PAI KELAS VII SMP N 31 SEMARANG. *Braz Dent J.*, 33(1), 1–12.
- Darusmanl, H. Y., Mumu, H., & Hamdan, A. (2019). *Jurnal Pengabdian Kepada Masyarakat (Abdimas) IKIP Siliwangi Volume 02 Nomor 02, Juli 2019. 02*, 62–72.
- Farid, M. (2021). Penerapan aplikasi google meet pada pembelajaran sosiologi ekonomi di masa pandemi covid-19. *EDUTAMA*.
- Fathimah, S., Sidik, S., & Rahman, R. (2020). Google docs sebagai solusi pengerjaan tugas kelompok dalam pembelajaran daring di tengah pandemi covid 19. *JISIP (Jurnal Ilmu Sosial Dan Pendidikan)*, 4(3).
- Gozali, M. (2020). Pemanfaatan LKPD Berbantu Aplikasi Google Dokumen Untuk Meningkatkan Kerjasama Pada Pembelajaran Daring Peserta Didik Kelas 5 SD N 3 Wadas Tahun Pelajaran 2020/2021. *JP3 (Jurnal Pendidikan Dan Profesi Pendidik)*, 6(1), 34–41. <https://doi.org/10.26877/jp3.v6i1.7316>
- Hafid, H., & Barnoto, B. (2022). Manajemen Pembelajaran Kelas Digital Berbasis Google Workspace for Education. *Kharisma: Jurnal Administrasi Dan Manajemen Pendidikan*, 1(1), 48–58. <https://doi.org/10.59373/kharisma.v1i1.5>
- Irawan, I., Merakati, I., Sudarso, H., Roswati, R., Wiliyanti, V., & Rukiyanto, B. A. (2024). ANALISIS PERAN TEKNOLOGI DALAM MENINGKATKAN EFEKTIVITAS PEMBELAJARAN KOLABORATIF DI LINGKUNGAN PERGURUAN TINGGI. *Jurnal Review Pendidikan Dan Pengajaran (JRPP)*, 7(4 SE-Articles), 16192–16197. <https://doi.org/10.31004/jrpp.v7i4.37347>
- Irvan, I., Basit, L., Maulana, H., Nasution, M. R., & Wahyudi, R. (2021). Google Workspace for Education untuk Pebelajaran Berbasis ICT di Sekolah Muhammadiyah Kota Binjai. *JURNAL PRODIKMAS Hasil Pengabdian Kepada Masyarakat*, 6(2), 157–162.
- Izzati, I. (2021). Pemanfaatan Google Classroom sebagai Media Pembelajaran di Masa Pandemi di MI Unwanul Falah. *Yasin*, 1(1), 45–53. <https://doi.org/10.58578/yasin.v1i1.4>
- Kusumawati, K. (2023). Pemanfaatan Teknologi Informasi Dalam Pendidikan. *Jurnal Limits*, 5(1), 7–14. <https://doi.org/10.59134/jlmt.v5i1.311>
- Marlina, B. (2021). Pemanfaatan Google Workspace For Education pada Pembelajaran Daring. *Prosiding Seminar Nasional Pendidikan Program Pascasarjana Universitas PGRI Palembang*, 87–92.
- Mukminah, M., Wijaya, H., & Hirlan, H. (2021). Problematika Pembelajaran Saat Pandemi Covid-19 Di Madrasah Ibtidaiyah Nurul Ulum Mertak Tombok. *JISIP (Jurnal Ilmu Sosial Dan Pendidikan)*, 5(1).
- Mulatsih, B. (2020). Penerapan Aplikasi Google Classroom, Google Form, dan Quizziz dalam Pembelajaran Kimia di Masa Pandemi Covid-19. *Ideguru: Jurnal Karya Ilmiah*, 5(1), 19–26.
- Nurcahyoko, K., Hartono, R., Annurwanda, P., Pebriyanto, Y. A., & Putri, C. (2024). Pemberdayaan Guru Smp Kabupaten Landak Melalui Pemanfaatan Game-Based Learning Dan Cloud Computing Untuk Meningkatkan Literasi Digital. *Community Development Journal: Jurnal Pengabdian Masyarakat*, 5(5), 10230–10236.
- Palincsar, A. S. (2012). Social constructivist perspectives on teaching and learning. *An Introduction to Vygotsky*, 290–319.
- Pratama, A. R., Irsyad, W., Hassan, R. H., & Rawati, M. (2024). Pemanfaatan Google Form sebagai alat evaluasi pada pembelajaran pendidikan agama Islam. *Jurnal Pendidikan Tunas Bangsa*, 2(1), 19–30.
- Qomariah, S., Nursobah, & Lailiyah, S. (2019). Implementasi Pemanfaatan Google Classroom untuk Pembelajaran di Era Revolusi 4.0. *Seminar Nasional Hasil Pengabdian Kepada Masyarakat 2019*, 29, 227–231.

- Rahmi, W. (2024). Analytical study of experiential learning: Experiential learning theory in learning activities. *EDUKASIA Jurnal Pendidikan Dan Pembelajaran*, 5(2), 115–126.
- Salsabila, U. H., Fatimah, R. A., Indriyani, R. A., Dirahman, F., & Anendi, Y. (2023). Analysis of Technology Involvement in Islamic Religious Education Learning. *Borneo Educational Journal (Borju)*. <https://doi.org/10.24903/bej.v5i1.1167>
- Tinmaz, H., Lee, Y.-T., Fanea-Ivanovici, M., & Baber, H. (2022). A systematic review on digital literacy. *Smart Learning Environments*, 9(1), 21.
- Ulya, Z. (2024). Penerapan Teori Konstruktivisme Menurut Jean Piaget Dan Teori Neuroscience Dalam Pendidikan/Application Of Constructivism Theory According To Jean Piaget And Neuroscience Theory In Education. *Al-Mudarris: Journal of Education*, 7(1), 12–23.
- Yasyakur, M. (2023). Implementasi Pembelajaran Pendidikan Agama Islam Melalui Google Workspacedi Sekolah Dasar Islam Terpadu Gema Insan Mandiri Koja Jakarta Utara. *Jurnal Pendidikan Berafiliasi Dengan Politeknik Tunas Pemuda*, 6(1), 69.