



Analysis of the utilisation of the SIDIGS platform in enhancing the quality of academic services

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ABSTRACT

The development of information technology has encouraged schools to transform their management into a digital-based approach. SMP Muhammadiyah 3 Depok (*Mugadeta*) faces challenges in improving the quality of academic services and has implemented SIDIGS (School Integrated Digital System) as an innovative solution. This study aims to analyse the utilisation of SIDIGS in academic activities, its impact on service efficiency, and the challenges encountered in the implementation. A qualitative approach, employing a single case study, was used to collect data through in-depth interviews, observation, and documentation. The data were then analysed using Miles and Huberman's interactive model, incorporating source and technique triangulation. The results indicate that SIDIGS supports learning management via the Learning Management System (LMS), digital attendance, school-parent communication, and financial administration. The system improves efficiency, accelerates access to information, strengthens digital work culture, and establishes a paperless school management ecosystem. Challenges include system disruptions, limited internet access, and varying digital literacy among users, addressed through regular training and evaluations. The study implies that effective digital transformation in schools depends on human resource readiness, adaptive leadership, and a responsive digital work culture.

INTRODUCTION

In the 21st century, the advancement of information technology has sparked a revolution in education, particularly when it comes to academic administration and parent and student services at schools (Ilyas et al., 2025). This change includes not only the digitisation of administration but also a paradigm shift in real-time performance evaluation, communication between schools and parents, and access to academic data (Boeskens & Meyer, 2025). Schools must be able to adjust to these changes for academic services to be efficient, transparent, and meet quality standards.

The COVID-19 pandemic and governmental regulations in Indonesia have sped up the country's adoption of digital platforms in the educational system. In an attempt to meet the

demands of distance learning, attendance tracking, and immediate announcements, many schools have integrated Learning Management Systems (LMS) (Sobhani et al., 2025), academic information systems, or digital platforms between stakeholders (Abdigapbarova et al., 2025). Technical factors (like internet connections and devices); teachers, students, and parents digital literacy; as well as school management support, all have an impact on how well this adoption goes.

One of Indonesia's top networks of Islamic schools, Muhammadiyah School, exhibits its dedication to digitising school administration. SMP Muhammadiyah 3 Depok (Mugadeta), situated at Jl. Rajawali 10, Demangan Baru, Depok, Sleman, Yogyakarta, with NPSN 20401048 and an A accreditation, has positioned itself as a "Digital School" that uses digital classrooms, computer-based learning, and a web-based and digital school service information system (Liu et al., 2025).

Based on the school's official profile, one of Mugadeta's strengths is that it has implemented digital classrooms and a digital-based school information system (Apriwulan et al., 2025). The school aims to address the challenges of the digital age by offering facilities that support 21st-century learning, with its 12 standard digital and multimedia classrooms. However, the Education Database (Dapodik) indicates that internet access for the school was "nonexistent" during multiple synchronisation periods, indicating uneven infrastructure needs and stakeholder readiness (Ilyas et al., 2025).

A young businessman from Malang, East Java, named Transbara Wahyu created SIDIGS. Since 2020, he has served as the company's founder and CEO. The head office of SIDIGS is situated at Perum Green Elok Regency No. A12, Candirenggo, Singosari, Malang, East Java, according to information from the official website and his professional profile. SIDIGS, a new educational technology company, wants to help Indonesian schools go digital by providing an integrated information system that handles administration, communication, finance, and academics in real-time and without paper.

The SIDIGS application is available on various digital platforms, including Google Playstore, with several variants adjusted to the user's role. Below is the SIDIGS application display for parents, teachers, principals, and CBT for students (see Figure 1).



Figure 1. The SIDIGS Walimurid, SIDIGS CBT, SIDIGS Guru, and SIDIGS Kepala Sekolah applications are available on Google Playstore.

A system development team, a school training team, and a user service team comprise SIDIGS's management structure, which offers support to partner schools across different regions. SIDIGS is an edutech startup based in Malang that has been actively operating as a digitisation partner for numerous schools, including Muhammadiyah educational institutions in various regions of Indonesia, despite the fact that the specifics of the deed of establishment and full management structure have not been made public. A digital platform called SIDIGS was created to help schools transition to an integrated, effective, and flexible management system fit for the digital age. With over 500 features and 25 interconnected user roles (role logins), this system is a super app for schools, as mentioned on its official website. Its primary goal is to establish an ecosystem for digital education that will allow schools to manage their finances, academic programs, and communications in real-time, cashless, and paperless ways (Wang & Wang, 2025).

Digital attendance, grade management, absenteeism, quick announcements, online Selection of New Students Acceptance (SPMB), automatic financial reports, and digital accreditation document storage are just a few of the school activities that SIDIGS is intended to combine into an integrated system. Within the framework of digital education management theory, the SIDIGS concept aligns with the integrated information system concept, which is a system that integrates multiple subsystems to enhance the efficiency of inter-school coordination and decision-making (Zhang, 2025). Additionally, SIDIGS facilitates the development of a digital work culture or culture in the educational setting. Sari & Nugroho (2025) stated effective digitisation is characterised by behavioral, communication, and teamwork shifts among all parties involved towards a technology- and data-based work pattern. As a result, SIDIGS implementation is not only technological but also transformative in terms of organisational culture and management.

The SIDIGS is strategically relevant for educational institutions like Mugadeta, which actively promotes its digital school identity. This school has used modules like the Learning Management System (LMS), School Management System, and Digital Card for attendance and financial transactions, based on the report on the implementation of In-House Training (IHT) at Mugadeta with SIDIGS. This illustrates that SIDIGS is more than just an administrative tool; it is also a tool that enhances digital-based academic services, increases operational efficiency, and promotes information transparency (Yuna et al., 2025).

A specific scientific publication that explains in detail how SIDIGS is used at SMP Muhammadiyah 3 Depok, what parents and students think about how easy it is to use, how schools and guardians communicate through SIDIGS, and the challenges they face is not available. This type of empirical research is significant in the context of Islamic education and school administration because it can demonstrate how digital policies are supposed to be implemented and how they differ from those in the field. This description serves as the basis for the study's analysis of how SIDIGS is used to raise the standard of academic services at SMP Muhammadiyah 3 Depok. The focus of the research was then formulated as follows: (1) How is the SIDIGS platform used in academic service activities at SMP Muhammadiyah 3 Depok?; (2) How do SIDIGS services affect the enhancement of academic services at SMP Muhammadiyah 3 Depok?; and (3) What are the barriers to SIDIGS use at SMP Muhammadiyah 3 Depok?

METHOD

This study investigates the implementation of the SIDIGS system at SMP Muhammadiyah 3 Depok (Mugadeta), Sleman, Yogyakarta. A qualitative approach with a single case study design was employed by Hidayanti & Safuan (2025), allowing the researcher to examine the digital school system in depth and within its natural context (Karwanto et al., 2025). The research site was selected purposively because the school has formally adopted SIDIGS as an integrated digital management platform.

The research objects included both material and formal objects. The material objects, or tangible objects, are components that could be directly observed and interacted with, namely the SIDIGS digital platform as a web-based school information system and the user groups who operated it, including teachers, administrative staff, students, parents, and the school principal. The formal objects referred to the analytic aspects examined from those tangible elements, specifically the utilisation of SIDIGS, its impact on academic and administrative services, and the

key success factors that support its implementation. These distinctions helped clarify what elements were being studied and what dimensions of those elements were being analysed (Sahin, 2005).

Participants in this study consisted of individuals who actively used SIDIGS for academic and administrative purposes. Through purposive sampling, eight participants were selected based on their familiarity with the system (Al-Ghafari et al., 2022). They included the school principal, several teachers, administrative staff members, students, and parents. Data were collected through in-depth interviews to explore experiences, benefits, and challenges; direct observations conducted over three weeks to examine real-time system use in academic activities such as attendance, communication, and evaluation; and document analysis employing SIDIGS platform features, school policies, and official website data. The instruments used in this study were semi-structured interview guides (Table 1), observation checklists (Table 2), and documentation guidelines.

Table 1. Interview instrument framework

No	Investigated aspect	Indicators	Participants
1	Utilisation of SIDIGS	Perceived ease of use; frequency of system use; most frequently used features	Principal, teachers, administrative staff
2	Impact on academic services	Efficiency of attendance management, assessment, and academic communication	Teachers, students
3	Impact on administrative services	Ease of data management, financial reporting, and school administration	Administrative staff
4	Transparency and information access	Parents' access to academic and administrative information	Parents
5	User experience	Perceived benefits; usage challenges; user adaptation to the system	All participants
6	Supporting factors of implementation	Leadership support; training availability; human resource readiness	Principal, teachers
7	Inhibiting factors of implementation	Technical constraints; infrastructure limitations; user resistance	All participants
8	Impact on digital work culture	Changes in work patterns, communication, and collaboration	Teachers, administrative staff

Table 2. Observation instrument framework

No	Observed aspect	Observation indicators	Observation focus
1	Use of the SIDIGS system	Login activities; utilisation of main system features	Teachers, staff, students
2	Integration of academic services	Use of SIDIGS for attendance, assessment, and academic communication	Teaching-learning activities
3	Integration of administrative services	Data management and reporting through the system	School administration
4	User-system interaction	User responsiveness; smoothness of system operation	All system users
5	Real-time system usage	Direct system use during daily school activities	Daily school operations
6	Digital work culture	System-based collaboration; digital communication patterns	Teachers and administrative staff
7	Technical constraints	System disruptions; limited access to devices or internet	School environment

The data analysis followed Miles and Huberman's (2014) interactive model. Data reduction selected information relevant to the research focus, while the data was presented narratively and in tables. Conclusions were drawn inductively by identifying emerging patterns and themes from interviews, observations, and documentation (Miles et al., 2014). To ensure the validity and trustworthiness of the findings, source and technique triangulation were applied by comparing

data from multiple methods. Member checking was conducted to confirm the accuracy of interpretations with participants, and an audit trail was maintained to ensure transparency in the research process (Kustomo, 2024).

RESULTS

This section presents the research findings based on interview, observation, and documentation related to the implementation of the School Integrated Digital Information System (SIDIGS) at SMP Muhammadiyah 3 Depok.

Utilisation of the SIDIGS platform in academic services

SIDIGS is a school management application platform developed by the edutech startup named SIDIGS itself. This startup focuses on transforming conventional schools into smart digital schools, using daily financial management, automatic receipts, and cross-device access (laptops, tablets, mobile phones) features. Based on the research findings, several benefits from SIDIGS at SMP Muhammadiyah 3 Depok are as follows.

First, the utilisation of SIDIGS provides various real benefits for SMP Muhammadiyah 3 Depok students in supporting the effectiveness of academic services. Through the Learning Management System (LMS) feature, students can access class schedules, assignment submissions, learning materials, online attendance, discussion groups, video conferences, and school announcements. Based on direct interview results, the majority of students admitted to frequently using the SIDIGS platform, especially for viewing and submitting assignments, as well as monitoring class schedules. The most frequently used features are the assignment, grade, attendance, and schedule menus, which are considered very helpful because they allow easy access to information without having to directly ask the teacher.

The SIDIGS application provides various features that facilitate the digital learning process in schools (Figure 2). Through the subject selection menu (Figure 3), students can access materials according to a digitally integrated schedule. The lesson schedule and academic calendar available in the application help users monitor daily activities and school agendas in a more organised manner. In addition, the online assignment feature on SIDIGS allows students to complete and submit assignments easily, making the learning process more efficient and transparent.

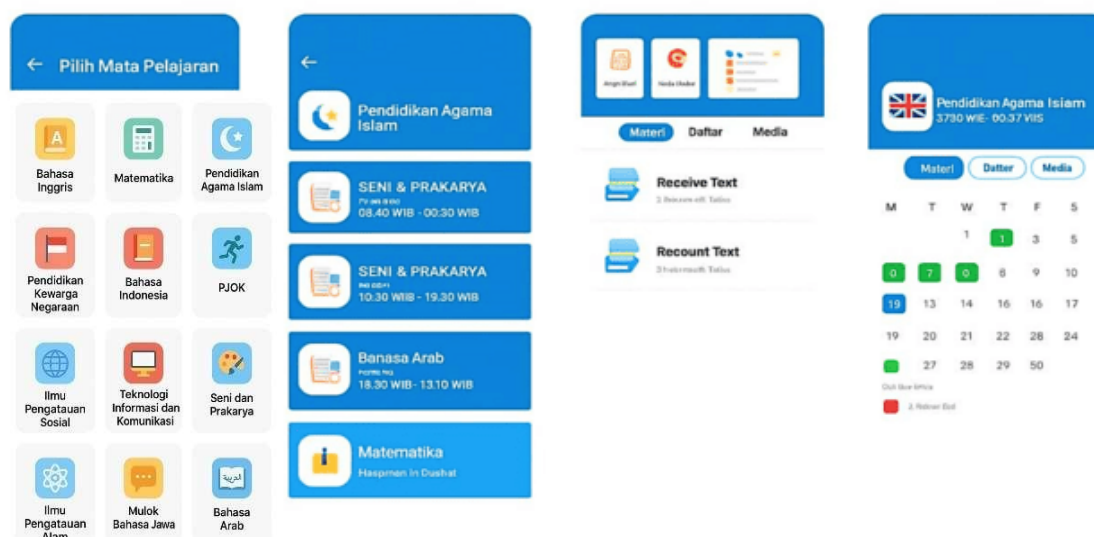


Figure 2. The display of the subject selection menu, digital lesson schedule, academic calendar, and assignment features on the SIDIGS application.

Second, the utilisation of SIDIGS for teachers supports the effectiveness of academic services. The main function of SIDIGS for teachers is to help them manage classes efficiently, provide personal feedback, and monitor student development in real-time. Through the Learning Management System (LMS) feature, teachers can upload materials, provide modules, assignments/quizzes, grade student work, facilitate discussions, and monitor attendance digitally.

Third, the utilisation of SIDIGS for parents in academic services simplifies access to information about their child's development; parents can monitor their child's activities transparently and make digital payments. Based on interview results, parents use several features such as attendance, chat with teachers, permission slips, grades, and digital invoices. Through digital notifications and announcements from SIDIGS, parents can obtain crucial information such as school activities, meetings, and academic schedules more quickly.

Fourth, for school administrators, SIDIGS provides ease in centrally monitoring all school digital activities, from teacher and student attendance, class management, to system usage reports (Table 3). Administrators can also set user access rights and are responsible for the system's technical management. With SIDIGS, the administrative process becomes more efficient, transparent, and integrated across school units. The SIDIGS application offers various digital services such as school announcements, digital magazine data, and academic document searches that can be accessed directly by users (Figure 4). These features facilitate the process of communication, documentation, and distribution of efficient and integrated academic information in a digital school environment.



Figure 3. Display of several service menus on the SIDIGS guardian application



Figure 4. Display of academic document and digital magazine search features on the SIDIGS application.

Table 3. SIDIGS management structure at SMP Muhammadiyah 3 Depok

No	Management level	Related parties	Primary role	Key features used
1	Strategic management	Principal	Digital policy, monitoring, collaboration with developers	Dashboard to monitor overall financial and academic reports, system evaluation
2	Technical management	School admin, operator	Account management, access rights, system integration	Admin Dashboard for account management, master data, and system integration
3	Academic management	Teacher	Digital instruction, grading, attendance	LMS, E-Report Card, Digital Assignments, student progress monitoring
4	Service management	Student	Learning, digital participation	Class schedules, grades, attendance, announcements, access to digital learning materials
5	Communication management	Parents/guardians	Child monitoring, payments, communication	Notifications, invoices, chat, digital permission slips, student progress reports
6	Technology management	Sidigs team	System development and maintenance	Back-End System, IHT training, system maintenance, and feature updates

Impact of SIDIGS on the quality of academic services

The implementation of SIDIGS at SMP Muhammadiyah 3 Depok has positively influenced various aspects of school's academic services. This system functions not only as an administrative tool but also as a catalyst in realising a digital education ecosystem that is efficient, transparent, and oriented towards improving learning quality. The research findings indicate four primary forms of impact: contextual learning, strengthening of the digital school program, computer-based learning, and effectiveness of academic programs. In terms of contextual learning, the SIDIGS application helps teachers to prepare learning materials and activities relevant to the students' context. Teachers can adjust assignments based on the situation, interests, and capabilities of each student. This allows students to understand the material more easily because of its connection to their daily lives, making learning more meaningful and stimulating critical thinking skills.

The SIDIGS also support the strengthening of the digital school program. SMP Muhammadiyah 3 Depok, as a school with the tagline "DIGITAL SCHOOL," is supported by the SIDIGS platform. SIDIGS supports comprehensive school digitalisation programs such as academic data management, administration, and communication among school stakeholders. Administrative processes run faster, and teachers, students, and parents can interact more efficiently and modernly. Computer-based learning. SMP Muhammadiyah 3 Depok has a total of 12 study groups, which are divided into two categories: Digital Class and Creative Class. The utilisation of the SIDIGS platform is prioritised for the Digital Classes, such as providing modules and learning features that can be run through computers, gadgets, or tablets, through quizzes, interactive materials, and digital evaluations. This increases students' digital literacy skills, provides a more interactive learning experience, and makes it easier for teachers to assess and monitor student progress.

In terms of the effectiveness of academic programs, with SIDIGS, the monitoring of students' academic progress at SMP Muhammadiyah 3 Depok becomes more systematic. Teachers can track grades, attendance, and student achievements in real-time and adjust learning strategies when necessary. As a result, the teaching and learning process is more structured and measurable. Students admitted that after using SIDIGS, school academic services improved compared to before, especially regarding the speed of information on grades, attendance, and assignment submission.

Keys to successful SIDIGS utilisation

Based on the interview and observation results, the successful implementation of SIDIGS (Figure 5) needs several supporting factors, as listed below.

1. The success of SIDIGS implementation is strongly influenced by the availability of supporting facilities at SMP Muhammadiyah 3 Depok, such as hardware, including computers, laptops, tablets, or smartphones, and school infrastructure, like a stable internet network. These facilities enable teachers and students to utilise the platform and features optimally without encountering technical barriers. One teacher remarked, *"Having reliable devices and internet access really makes a difference; without them, even simple tasks on SIDIGS can become frustrating"*.
2. It requires support from all parties. The utilisation of the SIDIGS application received support from teachers, staff, administration, students, and parents. Even senior teachers adapted enthusiastically to developments in educational technology. A senior teacher noted, *"At first, I struggled to navigate SIDIGS, but seeing younger teachers and students using it confidently motivated me to learn quickly."* Active participation from all stakeholders accelerates adaptation to the new system.
3. It also demands visionary leadership from the principal. The school's principal had a clear vision for digitalisation and encourages innovation, serving as a key driver for school members. The principal had successfully set direction, provided motivation, and emphasised the importance of SIDIGS utilisation. As stated by a teacher, *"Our principal always reminds us that digitalisation is not optional; it is essential for improving our school management and teaching quality."*
4. It obligates training and competency improvement for Human Resources (HR). SMP Muhammadiyah 3 Depok conducted an In-House Training (IHT) for teachers and staff, inviting the SIDIGS CEO, Transbara Wahyu, to strengthen understanding of the system. The training teaches proper operation, feature utilisation, and effective technology use. One staff member commented, *"The training helped me finally understand all the SIDIGS features; I now feel confident using them in daily tasks"*. Improving HR competency ensures the platform is used productively, not just formally.
5. It invites collaboration with the application development team. The school actively collaborates with the SIDIGS development team to customise features, handle technical issues, and perform regular system updates. A teacher explained, *"Whenever we face technical problems, the development team responds quickly, which makes the system much more reliable."*
6. It desires digital culture in the school environment (e-culture). A strong digital culture among teachers, staff, and students makes SIDIGS utilisation a routine part of school activities. Technology use is widely accepted and integrated into daily practice. As one student mentioned, *"Using SIDIGS has become part of our normal school routine; we no longer see it as just an extra task."*

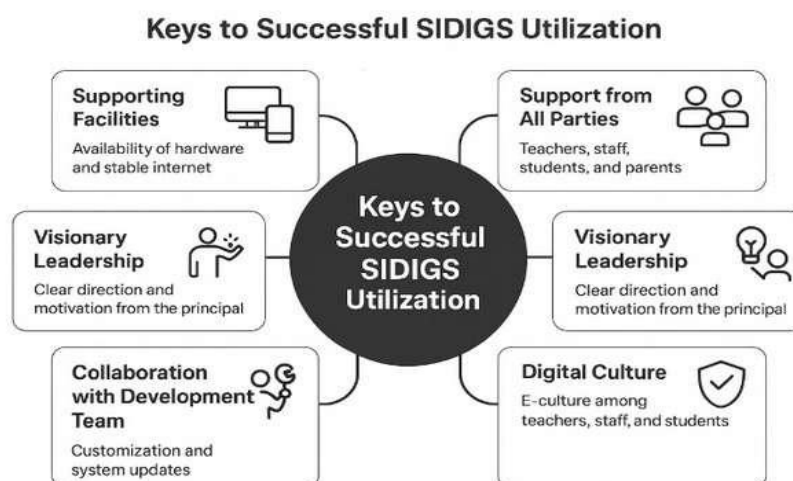


Figure 5. Keys to successful SIDIGS utilisation

DISCUSSION

The implementation of SIDIGS at SMP Muhammadiyah 3 Depok offers essential insights into how digital school management systems reshape academic services, stakeholder engagement, and institutional workflows (Nkomo et al., 2021). The findings regarding student usage, such as accessing schedules, submitting assignments, checking online attendance, and receiving announcements, illustrate a notable increase in student engagement and self-regulated learning (Aldhafeeri & Alotaibi, 2022). This is consistent with Purnamawati et al. (2023), who found that integrated digital platforms accelerate access to academic data and strengthen teacher–student communication.

The pattern observed in this study also aligns with the E-Culture Transformation Theory by Tang et al. (2025), which argues that digitalisation involves cultivating habits of collaboration, efficiency, and digital literacy rather than merely introducing technological tools. However, differences in device ownership and home internet connectivity explain why not all students experience equal benefits. These discrepancies necessitate targeted mitigation strategies, such as device loan programs, digital learning spaces, and school-provided internet support to prevent the widening digital inequities, consistent with global findings on digital access gaps (Oviedo et al., 2025).

The findings also highlight how teachers interact with SIDIGS for uploading learning materials, assigning quizzes, conducting digital assessments, and monitoring attendance. The system effectively shifts teacher workloads from administrative tasks toward pedagogical activities, supporting the conclusions of Zou et al. (2025) who emphasise the role of digital systems in accelerating the transition toward paperless education. Interviews reveal clear differences in digital adaptation: senior teachers often experience specific difficulties with interface navigation, such as accessing the assignment tracker, editing digital rubrics, or interpreting analytic dashboards, while younger teachers demonstrate faster adaptation due to higher digital self-efficacy and prior exposure to similar platforms (Timotheou et al., 2023). This is supported by Magtolol & Oropa (2025), who highlighted that confidence and digital familiarity significantly influence technology adoption. The school’s provision of continuous training, peer mentoring, and scaffolded practice sessions demonstrates how structured professional development mitigates these adaptation challenges.

From the parents’ perspective, features such as digital attendance tracking, messaging with teachers, digital permission submissions, and online invoices enhance transparency and enable real-time monitoring of students’ academic progress. This supports the findings of Khairati et al.

(2025), who reported that customised digital systems strengthen parental engagement and improve the effectiveness of educational technology. However, some parents, particularly those with low digital literacy, experience notification overload and confusion when multiple announcements are delivered simultaneously. In response, the school simplified communication templates, reduced redundant notifications, and provided guidance on navigating the SIDIGS parent interface. This illustrates how thoughtful communication design is necessary to avoid information fatigue (Rizk & Davies, 2021).

For administrators, SIDIGS enables efficient monitoring of attendance, class structures, access rights, and system-wide reports. These findings are consistent with those of Boeskens & Meyer (2025), on digital transformation management and report by Masaeed et al. (2025) who stressed that adaptive leadership and collaborative coordination underpin successful digitalisation. Nevertheless, reliance on digital platforms introduces vulnerabilities. Technical issues, system downtime, and synchronisation failures can disrupt school operations, making it essential to design emergency protocols and maintain manual backups (Pacheco et al., 2025). Such practices align with international recommendations for digital resilience in school management.

The study's findings also highlight a convergence of success factors, including adequate school facilities, multisided stakeholder support, visionary leadership, continuous training and competency development, collaboration with SIDIGS developers, and the establishment of a strong digital culture (e-culture). Khairullah et al. (2025) emphasised that the success of digital school systems depends on the integration of technological readiness, human capital, and strategic partnerships. Interviews further revealed *why* digital culture emerged strongly at SMP Muhammadiyah 3 Depok: not solely due to principal directives but also because teachers experienced reduced paperwork, students found digital tracking easier, and parents valued real-time transparency. These positive user experiences generated a bottom-up reinforcement of top-down leadership directives, aligning with global frameworks on digital habit formation.

The findings resonate with broader literature demonstrating that digital competency, internal capacity building, and infrastructure readiness are core determinants of successful digital transformation. Forsström et al. (2025) highlighted these elements as critical for school-level digitalisation, while González-Pérez et al. (2025) argued that integrating educational technology enhances organisational efficiency and learning outcomes. Furthermore, Khairullah et al. (2025) noted that digital systems function not merely as administrative tools but as catalysts for institutional innovation and structural change.

Despite the benefits identified, not all aspects of SIDIGS implementation translate automatically into improved learning quality. Digital systems require not only adequate infrastructure but also the development of digital culture, user competency, and consistent system utilisation. The variation in teacher digital skills, uneven student device access, and differing levels of parental digital literacy illustrate *how* social and contextual factors mediate digital transformation outcomes (Yousofi et al., 2025). Schools considering similar implementations should adopt a continuous evaluation cycle that includes system performance monitoring, user competency assessments, and stakeholder feedback integration to ensure long-term sustainability (Al-Jabri et al., 2025).

This discussion also acknowledges the study's limitations. As a case study investigating one school, the findings have limited generalisability and may not represent the conditions of other schools with different resources, leadership characteristics, or technological infrastructures (Kimmons et al., 2025). The strong collaboration observed between the school and SIDIGS developers may also not be present in different educational settings. Future research should therefore consider multi-site comparative studies, longitudinal analyses of digital system impacts on student learning outcomes, and evaluations of how digital culture evolves across varying institutional contexts (Krutka et al., 2024).

Overall, the implementation of SIDIGS at SMP Muhammadiyah 3 Depok demonstrates that digital school information systems can enhance efficiency, transparency, and coordinated collaboration across stakeholders while simultaneously contributing to sustained improvements in learning quality when supported by adequate training, leadership, and infrastructure. Moreover, the system fosters a stronger digital culture by embedding habitual technological practices in daily school operations, enabling teachers, students, and parents to interact within a more integrated learning ecosystem. These findings further suggest that the long-term success of SIDIGS depends not only on system availability but also on continuous capacity building and adaptive management to ensure consistent and meaningful system utilisation.

CONCLUSION

This research demonstrates that the utilisation of SIDIGS at SMP Muhammadiyah 3 Depok significantly improves the quality of academic services through the effectiveness of learning management, digital attendance, parent communication, and financial administration. The system strengthens digital work culture, increases information transparency, accelerates access to academic data, and encourages operational efficiency at all levels of school management. Adequate school facilities, visionary leadership, continuous training, collaboration with developers, and an adaptive digital culture are all factors that contribute to the success of SIDIGS implementation. However, this study has limitations related to its single-school scope, uneven infrastructure access, and variation in users' digital competency, which can affect the generalisation of the findings. Therefore, subsequent research is suggested to expand the sample across schools, explore the influence of SIDIGS use on student learning outcomes, and analyse the integration of the digital system with more specific pedagogical strategies. These findings affirm that school digital transformation depends on the synergy of technology, human resources, and adaptive management.

Author contributions

The authors made significant contributions to the study's conception and design. The authors was in charge of data analysis, interpretation, and discussion of results. The final manuscript was read and approved by the authors.

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Conflict of interest

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Data availability statement

All data are available from the authors

REFERENCES

- Abdigapbarova, U., Sadirbekova, D., Nishanbayeva, S., & Zhiyenbayeva, N. (2025). The impact of digital hybrid education model on teachers' engagement and academic performance in the context of Kazakhstan. *Scientific Reports*, *15*(1), 1–13. <https://doi.org/10.1038/s41598-025-02875-2>
- Al-Ghafari, A., Elmorsy, E. M., Doghaither, H. Al, & Fahmy, E. (2022). Cyclic AMP and calcium signaling are involved in antipsychotic-induced diabetogenic effects in isolated pancreatic β cells of CD1 mice. *International Journal of Health Sciences*, *16*(5), 9–20. <https://pmc.ncbi.nlm.nih.gov/articles/PMC9441645/>
- Al-Jabri, K., Al-Mulla, Y., Al-Abri, A., Al-Battashi, F., Al-Sulaimani, M., Tabook, A., Al-Raba'Ni, S., Sulaiman, H., Al-Salmi, N., & Al-Shukaili, T. (2025). Integrating remote sensing techniques and allometric models

- for sustainable carbon sequestration estimation in prosopis cineraria-druce trees. *Sustainability (Switzerland)*, 17(1). <https://doi.org/10.3390/su17010123>
- Aldhafeeri, F. M., & Alotaibi, A. A. (2022). Effectiveness of digital education shifting model on high school students' engagement. *Education and Information Technologies*, 27(5), 6869–6891. <https://doi.org/10.1007/s10639-021-10879-4>
- Apriwulan, H. F., Siswanto, D. H., Susetyawati, M. E., & Hidayati, E. (2025). Systematic management of digital education services in islamic senior high schools. *Jurnal Ilmiah Multidisiplin Ilmu*, 2(5), 216–226. <https://doi.org/10.69714/y1jnv13>
- Boeskens, L., & Meyer, K. (2025). Policies for the digital transformation of school education: Evidence from the Policy Survey on School Education in the Digital Age. *OECD Education Working Papers*, 328, 11–36. <https://dx.doi.org/10.1787/464dab4d-en>
- Forsström, S., Njå, M., Munthe, E., Álvarez-Galván, J.-L., & Houldsworth, L. (2025). The impact of digital technologies on students' learning. *OECD Education Working Papers*, 335. https://www.oecd.org/en/publications/the-impact-of-digital-technologies-on-students-learning_9997e7b3-en.html
- González-Pérez, L. I., Enciso-González, J. A., Vicario-Solorzano, C. M., & Ramírez-Montoya, M. S. (2025). Measuring digital transformation in education 4.0 with dt-smarty: valid and reliable model. In *Technology, Knowledge and Learning* (Issue 0123456789). Springer Netherlands. <https://doi.org/10.1007/s10758-025-09844-8>
- Hidayanti, L., & Safuan, S. (2025). Smart school sebagai solusi transformasi digital pendidikan: studi kasus implementasi di sekolah swasta Indonesia. *Jurnal Pendidikan Indonesia*, 6(8), 4080–4089. <https://doi.org/10.59141/japendi.v6i8.8561>
- Ilyas, I., Wahab, W., Imran, I., Mhluddin, M., & Asmawati, A. (2025). Digital transformation in educational management for school quality in the digital era. *Scaffolding: Jurnal Pendidikan Islam Dan Multikulturalisme*, 7(3), 78–90. <https://doi.org/10.37680/scaffolding.v7i3.7735>
- Karwanto, Pattipeilohy, P., & Fitri, R. N. (2025). *Enhancing school performance through technology based managerial skills of school principals* (issue iceste). Atlantis Press SARL. https://doi.org/10.2991/978-2-38476-489-1_40
- Khairati, A., Ifdil, I., Zulfi, N. A. W., Annisa, D. F., & Putri, Y. E. (2025). Digital overload: Understanding social media fatigue in higher education based on demographics and technology usage. *Islamic Guidance and Counseling Journal*, 8(2). <https://doi.org/10.25217/0020258654200>
- Khairullah, S. A., Harris, S., Hadi, H. J., Sandhu, R. A., Ahmad, N., & Alshara, M. A. (2025). Implementing artificial intelligence in academic and administrative processes through responsible strategic leadership in the higher education institutions. *Frontiers in Education*, 10(2). <https://doi.org/10.3389/feduc.2025.1548104>
- Kimmons, R., McDonald, E., & Rosenberg, J. M. (2025). Trends and topics in educational technology, 2025 Edition. *TechTrends*, 69(4), 859–863. <https://doi.org/10.1007/s11528-025-01085-x>
- Krutka, D. G., Greenhow, C., Kimmons, R., Pangrazio, L., & Trust, T. (2024). The state of educational technology research and practice. *Handbook of Children and Screens: Digital Media, Development, and Well-Being from Birth Through Adolescence*, 523–528. https://doi.org/10.1007/978-3-031-69362-5_71
- Kustomo. (2024). Digital management and transformational leadership in educational institutions. *Global Education : International Journal of Educational Sciences and Languages*, 2018. <https://doi.org/10.70062/globaleducation.v2i3.221>
- Liu, T., Luo, Y. T., Pang, P. C. I., & Kan, H. Y. (2025). Exploring the impact of information and communication technology on educational administration: A Systematic Scoping Review. *Education Sciences*, 15(9). <https://doi.org/10.3390/educsci15091114>
- Magtoltol, R., & Oropa, J. (2025). ICT landscape and digital literacy skills of basic education teachers. *Journal of Interdisciplinary Perspectives*, 3(6), 145–153. <https://doi.org/10.69569/jip.2025.173>
- Masaeed, M. J. N., Shehada, S. A. J., & Mersal, M. A. S. (2025). The effect of digital transformation on teacher performance evaluation in Palestinian schools. *Frontiers in Education*, 10(April), 1–14. <https://doi.org/10.3389/feduc.2025.1440731>
- Miles, B. M., Huberman, A. M., & Saldana, J. (2014). *Qualitative Data Analysis_ A Methods Sourcebook* (3rd ed.). Sage Publications, Inc.
- Nkomo, L. M., Daniel, B. K., & Buston, R. J. (2021). Synthesis of student engagement with digital technologies: a systematic review of the literature. *International Journal of Educational Technology in Higher Education*, 18(1), 1–26. <https://doi.org/10.1186/s41239-021-00270-1>
- Oviedo, V. Y., Guydish, A. J., & Fox Tree, J. E. (2025). The liking gap online: People like us more than we think. *Computers in Human Behavior Reports*, 17(January), 100582.

- <https://doi.org/10.1016/j.chbr.2024.100582>
- Pacheco, A., Yupanqui, R., Mogrovejo, D., Garay, J., & Uribe-Hernández, Y. (2025). Impact of digitization on educational management: Results of the introduction of a learning management system in a traditional school context. *Computers in Human Behavior Reports*, 17(January).
<https://doi.org/10.1016/j.chbr.2025.100592>
- Purnamawati, S. N., Aryani, R., Tarjiah, I., & Kurniawan, E. (2023). Development of a website-based education management information system in inclusive schools. *Indonesian Journal Of Educational Research and Review*, 5(3), 554–563. <https://doi.org/10.23887/ijerr.v5i3.56659>
- Rizk, J., & Davies, S. (2021). Can digital technology bridge the classroom engagement gap? Findings from a qualitative study of k-8 classrooms in 10 ontario school boards. *Social Sciences*, 10(1), 1–17.
<https://doi.org/10.3390/socsci10010012>
- Sahin, I. (2005). Understanding faculty adoption of technology using the learning/adoption trajectory model: A qualitative case study. *The Turkish Online Journal of Educational Technology*, 4(1), 75–84.
- Sari, S. I., & Nugroho, M. A. (2025). School Digital Transformation: Design and Construction of New Student Admissions Website. *International Journal of Studies in International Education*, 2(3), 21–27.
<https://doi.org/10.62951/ijisie.v2i3.345>
- Sobhani, S. M. J., Jamshidi, O., & Fozouni Ardekani, Z. (2025). Cultivating knowledge: the adoption experience of learning management systems in agricultural higher education. *Frontiers in Education*, 10(April), 1–15. <https://doi.org/10.3389/feduc.2025.1551546>
- Tang, J., Huang, P., & Yan, S. (2025). Digital transformation in higher education: logical framework, practical dilemmas, and implementation approaches. *Frontiers in Psychology*, 16(November), 1–16.
<https://doi.org/10.3389/fpsyg.2025.1565591>
- Timotheou, S., Miliou, O., Dimitriadis, Y., Sobrino, S. V., Giannoutsou, N., Cachia, R., Monés, A. M., & Ioannou, A. (2023). Impacts of digital technologies on education and factors influencing schools' digital capacity and transformation: A literature review. In *Education and Information Technologies* (Vol. 28, Issue 6). Springer US. <https://doi.org/10.1007/s10639-022-11431-8>
- Wang, Y., & Wang, Z. (2025). Research on information sharing and tracking platform for educational management based on internet of things technology. *Discover Artificial Intelligence*, 5(1), 1–32.
<https://doi.org/10.1007/s44163-025-00594-1>
- Yousofi, R., Golzar, J., & Yacoub, O. (2025). Digital divides and bridges: equity implications of EdTech in ESL education. *Frontiers in Education*, 10(August), 1–12.
<https://doi.org/10.3389/feduc.2025.1590828>
- Yuna, D., Syaifuddin, & Rosita. (2025). Technology integration in education management: Challenges, benefits, and future directions. *Forum for Linguistic Studies*, 7(2), 1029–1040.
<https://doi.org/10.30564/fls.v7i2.8358>
- Zhang, Y. (2025). Study on the integrated effectiveness of information technology-based educational management. *Applied Mathematics and Nonlinear Sciences*, 10(1), 3383–3392.
- Zou, Y., Kuek, F., Feng, W., & Cheng, X. (2025). Digital learning in The 21st century: trends, challenges, and innovations in technology integration. *Frontiers in Education*, 10.
<https://doi.org/10.3389/feduc.2025.1562391>