

**Innovations in Computer Technology Management
Based on Digital Transformation to Support Learning
at SDIT Pondok Duta Cimanggis, Depok**

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Abstract: Digital transformation has encouraged educational institutions to strengthen computer technology management in order to support effective learning processes. This study aims to analyze the management of computer technology in supporting learning at SDIT Pondok Duta Cimanggis Depok. This research employed a qualitative approach using a case study design. Data were collected through observations, in-depth interviews, and document analysis involving the principal, Information and Communication Technology (ICT) teachers, classroom teachers, administrative staff, and students. Data were analyzed interactively through the stages of data condensation, data display, and conclusion drawing. The findings indicate that computer technology management has been implemented through four management functions: planning, organizing, actuating, and controlling. Planning was carried out based on learning needs, organizing was conducted through clear task allocation, implementation was realized through the utilization of computer technology as learning media, learning resources, and practical learning tools for students, while controlling was conducted through regular monitoring and evaluation. Supporting factors included the principal's commitment, the availability of technological facilities, and the readiness of teachers and students to utilize technology. Meanwhile, the inhibiting factors included limited financial resources, continuous device maintenance, inadequate internet connectivity, and teachers' digital competencies that still require improvement. The study concludes that well-planned and sustainable computer technology management enhances the effectiveness of the learning process and contributes to improving the quality of digital-based education.

Keywords: Educational Management; Computer Technology; Digital Transformation; Learning; Elementary School

Introduction

Advances in digital technology have had a major impact on our lives, particularly in the field of education. The use of computer technology is not merely a tool to support learning; it plays a crucial role in creating a learning process that is interactive, effective, collaborative, and learner-centered. In Indonesia, digital transformation is being further strengthened through

government policies, one of which is the implementation of the Merdeka Curriculum, which encourages the use of digital technology in learning activities, assessments, and school administration. However, various studies reveal that the use of technology in schools still faces challenges, such as limited technological infrastructure, a lack of digital competencies among educators, suboptimal technology management, and a lack of support from school administrators in building a digital-based learning ecosystem. Therefore, the success of digital transformation depends not only on the availability of technology but also on schools' ability to manage technology effectively.

The management of computer technology in schools does not focus solely on the provision of hardware and software, but must also include planning, organizing, implementing, maintaining, and monitoring so that technology management can effectively support the learning process. Effective management enables schools to integrate technology into the learning process on an ongoing basis and to improve the efficiency of available resources. Research by Cabellos, Siddiq, and Scherer shows that a school environment that supports the availability of technological facilities, school policies, and organizational support has a positive impact on the intensity of technology use by teachers while also enhancing students' digital competencies. These findings indicate that the quality of technology management is one of the key factors in the success of digital transformation in educational settings.¹

Various previous studies have examined the implementation of digital technology in education from a range of perspectives. Schmitz et al. found that transformational leadership by school principals plays a key role in enhancing teachers' readiness and the successful implementation of technology in schools². Consoli et al. reported that the quality of technology integration has a positive relationship with student engagement and the development of their digital competencies during the learning process³. Meanwhile, Mustafa et al. noted that limitations in infrastructure, funding, and human resource competencies remain major challenges in the implementation of educational technology, particularly in schools with

¹ Beatriz Cabellos, Fazilat Siddiq, & Ronny Scherer, *The Moderating Role of School Facilitating Conditions and Attitudes towards ICT on Teachers' ICT Use and Emphasis on Developing Students' Digital Skills*, Computers in Human Behavior, 2024. DOI: <https://doi.org/10.1016/j.chb.2023.107994>

² Maria-Luisa Schmitz et al., *Transformational Leadership for Technology Integration in Schools: Empowering Teachers to Use Technology in a More Demanding Way*, Computers & Education, 2023. DOI: [10.1016/j.compedu.2023.104880](https://doi.org/10.1016/j.compedu.2023.104880)

³ Tessa Consoli et al., *Quality of Technology Integration Matters: Positive Associations with Students' Behavioral Engagement and Digital Competencies for Learning*, Education and Information Technologies, 2024. DOI: [10.1007/s10639-024-13118-8](https://doi.org/10.1007/s10639-024-13118-8)

limited resources.⁴ The difference between these studies is that Schmitz's study focuses on school leadership, while Consoli's emphasizes the quality of technology integration in enhancing student engagement. Meanwhile, Mustafa highlights the various challenges of implementing technology in schools.

Although many researchers have studied the use of digital technology in education, most still focus on the use of technology in the learning process, improving school principals' leadership, teachers' digital competencies, and schools' readiness to face digital transformation. Research by Crompton and Burke shows that the use of educational technology can improve student learning outcomes.⁵ Meanwhile, a study by Consoli et al. found that the quality of technology integration has a positive impact on students' learning and enhances their digital competencies⁶. In general, both studies indicate a positive impact of technology use on improving the quality of learning in schools. However, neither study has specifically examined the management of computer technology based on the functions of planning, organizing, executing, and controlling (POAC) in integrated Islamic elementary schools. Therefore, this study was conducted to address this research gap while also providing an overview of and analyzing the implementation of management functions in the administration of computer technology at SDIT Pondok Duta Cimanggis, Depok.

The novelty of this study lies in its examination of how technology is managed by schools through the management functions of Planning, Organizing, Actuating, and Controlling (POAC) in integrated Islamic elementary schools. This study describes the process of technology management, ranging from planning task assignments and device requirements to implementing the use of technology in learning, as well as monitoring and evaluating its use. In addition, this study also identifies supporting and inhibiting factors in computer technology management, thereby providing insights for schools to effectively improve the quality of technology-based learning.⁷

⁴ Faisal Mustafa, Hoa Thi Mai Nguyen, & Xuesong Gao, *The Challenges and Solutions of Technology Integration in Rural Schools: A Systematic Literature Review*, International Journal of Educational Research, 2024. DOI: [10.1016/j.ijer.2024.102380](https://doi.org/10.1016/j.ijer.2024.102380)

⁵ Helen Crompton dan Diane Burke, "The Nexus of ISTE Standards and Academic Progress: A Mapping Analysis of Empirical Studies," *TechTrends* 68, no. 4 (2024). DOI: [10.1007/s11528-024-00973-y](https://doi.org/10.1007/s11528-024-00973-y)

⁶ Tessa Consoli, Maria-Luisa Schmitz, Chiara Antonietti, Philipp Gonon, Alberto Cattaneo, dan Dominik Petko, "Quality of Technology Integration Matters: Positive Associations with Students' Behavioral Engagement and Digital Competencies for Learning," *Education and Information Technologies* 30, no. 6 (2025): 7719–7752. <https://doi.org/10.1007/s10639-024-13118-8>

⁷ Chen, Chih-Hung, Hua-Yi Fei, and Chin-Chung Tsai. "Hierarchical Analysis of In-Service Teachers' Barriers to Technology-Integrated Instruction: A Review of

SDIT Pondok Duta Cimanggis Depok is one of the integrated Islamic elementary schools that has utilized computer technology as a teaching method. This technology is applied in Information and Communication Technology (ICT) classes, school administrative activities, and the delivery of instructional materials through digital media. However, several challenges remain in its implementation, such as budget constraints, the readiness of human resources, the need for ongoing equipment maintenance, and the need to improve teachers' competence in making the most of the technology. This situation highlights that the management of computer technology requires effective leadership so that the results achieved can support continuous improvements in the quality of learning.⁸

The results of this study are expected to contribute both theoretically and practically to the development of educational technology management in schools. Theoretically, this study is expected to add to the body of research on computer technology management based on the management functions of Planning, Organizing, Actuating, and Controlling (POAC). In practical terms, the research findings are expected to serve as a basis for schools to evaluate, plan, manage, and develop the use of computer technology in order to foster more effective learning and improve the quality of education. Furthermore, these findings are expected to serve as a reference for other researchers and schools seeking to develop and examine the management of computer technology as part of efforts to improve the quality of education in this digital age⁹.

Methods

This study employs a qualitative approach using a case study design. This qualitative approach aims to gain an in-depth understanding of the computer technology management process at SDIT Pondok Duta Cimanggis, Depok, in its natural setting. Through the case study, the researcher was able to examine the computer technology management process – which includes the planning, organizing, implementation, and monitoring stages – as applied at the school, thereby allowing this phenomenon to be studied and understood within its specific context¹⁰.

2000–2024 Publications." *Computers & Education*, Vol. 242 (2026), Article 105509. DOI: [10.1016/j.compedu.2025.105509](https://doi.org/10.1016/j.compedu.2025.105509)

⁸ Diyah Mintasih, Sukiman, dan Sigit Purnama, "Integration of Digital Technology in Islamic Religious Education Learning," *Jurnal Pendidikan Islam* 13, no. 1 (2024). DOI: [10.14421/jpi.2024.131.85-96](https://doi.org/10.14421/jpi.2024.131.85-96).

⁹ Beatriz Cabellos, Fazilat Siddiq, and Ronny Scherer, "The Moderating Role of School Facilitating Conditions and Attitudes towards ICT on Teachers' ICT Use and Emphasis on Developing Students' Digital Skills," *Computers in Human Behavior* 150 (2024): 107994. DOI: <https://doi.org/10.1016/j.chb.2023.107994>

¹⁰ Prativa Shrestha & Prakash C. Bhattarai, *Application of Case Study Methodology in the Exploration of Inclusion in Education*, *American Journal of Qualitative Research*, Vol. 6, No. 1 (2022), hlm. 73–84. DOI: [10.29333/ajqr/11461](https://doi.org/10.29333/ajqr/11461).

This case study design was chosen because it focuses on a single educational institution—SDIT Pondok Duta—which has unique characteristics in managing computer technology to support the learning process. This approach allows the researcher to conduct an in-depth analysis of various activities, policies, and interactions among school community members in managing computer technology. However, this study does not merely describe what happens; it also reveals how and why these management processes take place¹¹.

Data collection was conducted through observation, in-depth interviews, and a review of documents. The informants in this study consisted of the school principal, Information and Communication Technology (ICT) teachers, classroom teachers, administrative staff, and students involved in the use of computer technology in the school environment. The use of these various techniques aimed to obtain data from multiple sources so that the information gathered would be more comprehensive and complementary, thereby enhancing the depth of the research analysis¹².

Data validity was tested through source triangulation and methodological triangulation by comparing the information obtained from interviews, observations, and documentation. These techniques were used to enhance the credibility of the research findings, ensuring that the information obtained has a high level of reliability. Furthermore, data analysis was conducted interactively through the stages of data condensation, data presentation, and drawing conclusions in a continuous process until valid and accountable findings were obtained¹³.

Result and Discussion

Planning in Computer Technology Management

The results of this study indicate that planning for computer technology management at SDIT Pondok Duta Cimanggis in Depok is carried out through the identification of hardware needs, the development of work plans, and the alignment of these plans with the school's learning needs. This planning process is a crucial initial step, as it serves as a guideline for systematically determining priorities regarding the procurement, utilization, and development of computer technology. Through structured planning, schools are able to allocate resources more effectively so that every program

¹¹ Ummu Khairiyah dkk., *Qualitative Case Study Research in Education: A Systematic Review of Methodological Approaches and Analytical Practices*, Elementary School Education Journal, Vol. 10, No. 1 (2026). DOI: [10.30651/else.v10i1.24168](https://doi.org/10.30651/else.v10i1.24168)

¹² M. Hidayat dkk., *The Implementation of ClassPoint in Learning English: A Case Study*, JISAE, Vol. 9, No. 2 (2023). DOI: [10.21009/jisae.v9i2.36808](https://doi.org/10.21009/jisae.v9i2.36808).

¹³ Margarithe Charlotte Schlunegger, Maya Zumstein-Shaha, dan Rebecca Palm, "Methodologic and Data-Analysis Triangulation in Case Studies: A Scoping Review," *Western Journal of Nursing Research* 46, no. 8 (2024): 611–622. <https://doi.org/10.1177/01939459241263011>

designed can support the achievement of learning objectives. In addition, the planning process also provides clear direction for the implementation of technology so that the use of computer equipment is not merely focused on providing facilities, but is also aimed at continuously improving the quality of educational services.

These findings are consistent with research conducted by María José Sosa-Díaz, María del Carmen Sierra-Daza, Rocío Arriazu-Muñoz, Francisco Llamas-Salguero, and Fernando Durán-Rodríguez, which states that the successful integration of technology in educational settings is greatly influenced by systematic planning and clear implementation strategies. According to them, a thorough planning process enables schools to manage digital resources more effectively, reduce barriers to technology adoption, and create a learning environment that supports 21st-century learning. Thus, planning is not merely an administrative step, but also a strategic foundation for achieving sustainable digital transformation in the school environment.¹⁴

Based on the results of observations, in-depth interviews, and a review of documents, the development of the work program at SDIT Pondok Duta Cimanggis, Depok, is carried out through coordination among the principal, the Information and Communication Technology (ICT) teacher, classroom teachers, and administrative staff. This coordination aims to ensure that the needs for computer hardware, software, and digital learning materials are tailored to the schools' circumstances and the students' needs. The research findings also indicate that any plan for the procurement or use of technology must first take into account budget availability, human resource readiness, and learning program priorities. This situation indicates that the planning process implemented at the school is not only focused on providing technological resources, but also takes into account the effectiveness of their use in supporting the learning process and the sustainability of the digital programs that have been designed. The findings show that collaborative planning can improve schools' readiness to implement computer technology in a more focused and sustainable manner.¹⁵

Based on these findings, it is clear that the planning function plays a crucial role in determining the success of computer technology management in schools. Systematic planning enables schools to accurately identify their technology needs, optimize the use of available resources, and reduce various

¹⁴ María José Sosa-Díaz, María del Carmen Sierra-Daza, Rocío Arriazu-Muñoz, Francisco Llamas-Salguero, and Fernando Durán-Rodríguez, "EdTech Integration Framework in Schools: Systematic Review of the Literature," *Frontiers in Education* 7 (2022), <https://doi.org/10.3389/educ.2022.895042>

¹⁵ Dominik Petko et al., "Quality of Technology Integration Matters," *Education and Information Technologies* 29 (2024), doi.org/10.1007/s10639-024-12692-0

obstacles in the implementation of digital programs. Therefore, planning not only serves as a guideline for carrying out activities, but also forms the basis for creating effective, efficient, and sustainable computer technology management to support improvements in the quality of learning at SDIT Pondok Duta Cimanggis, Depok.

Organizing in Computer Technology Management

The results of the study show that the organization of computer technology management at SDIT Pondok Duta Cimanggis in Depok is carried out through a clear division of tasks and responsibilities among the principal, Information and Communication Technology (ICT) teachers, classroom teachers, and administrative staff. Each staff member has a role in accordance with their respective functions and responsibilities in supporting the management of computer technology within the school environment. The principal plays a role in policy development and decision-making, the ICT teacher is responsible for managing equipment and providing guidance on the use of technology, and classroom teachers integrate technology into learning activities. Meanwhile, administrative staff assist with the management of administrative tasks and the inventory of technological equipment so that all activities can proceed in a coordinated manner and support the achievement of learning objectives.

The findings of this study are consistent with the results of a study by Maria-Luisa Schmitz et al., which explains that the success of technology integration in schools is not only determined by the availability of digital devices but is also influenced by school leadership that is capable of fostering effective coordination, task distribution, and collaboration among school community members. Transformational leadership encourages teachers to be more confident in using technology, enhances collaboration among staff, and fosters a school culture that supports technology-based learning innovation. Thus, organizational structure is a key factor in creating a school environment that is adaptable to developments in digital technology.¹⁶

Based on the results of observations and interviews, coordination among staff at SDIT Pondok Duta Cimanggis, Depok, takes place on a regular basis through evaluation meetings, informal discussions, and direct communication when challenges arise in the use of computer technology. This coordination mechanism ensures that any issues related to device usage, learning needs, or the maintenance of technology facilities can be promptly

¹⁶ Maria-Luisa Schmitz, Chiara Antonietti, Alberto Cattaneo, and Dominik Petko, "Transformational Leadership for Technology Integration in Schools: Empowering Teachers to Use Technology in a More Demanding Way," *Computers & Education* 205 (2023): 104880 <https://doi.org/10.1016/j.compedu.2023.104880>

addressed by the responsible parties. This situation demonstrates that a clear division of tasks not only enhances the effectiveness of work execution but also strengthens collaboration among the school community, enabling the management of computer technology to proceed in a more focused, efficient, and sustainable manner.¹⁷

Based on the findings of this study, it can be understood that the organizing function plays an important role in supporting the successful management of computer technology in schools. The division of tasks, combined with effective coordination and communication, fosters synergy among staff, ensuring that all activities related to the use of technology can be carried out optimally. Therefore, good organization not only clarifies the responsibilities of every member of the school community but also serves as a supporting factor in creating an effective, efficient, and sustainable computer technology management system to improve the quality of the digital-based learning process.¹⁸

Actuation in Computer Technology Management

The results of the study show that the implementation of computer technology management at SDIT Pondok Duta Cimanggis in Depok is carried out through the use of digital devices as teaching aids, learning resources, and practical tools for students. Teachers use computers to present lesson material, display interactive media, access various digital learning resources, and support hands-on activities in Information and Communication Technology (ICT) classes. The use of this technology is carried out in a planned manner in accordance with learning needs so that it can support the creation of a learning process that is more effective, interactive, and learner-centered.¹⁹

The findings of this study are consistent with the research by Tessa Consoli et al., which states that the quality of technology integration in the learning process has a positive relationship with increased student

¹⁷ Leni Maryani, Jumaidi Nur, Sri Utami, Ihfa Indira Nurnaifah, and Farida, "Strengthening School Management with Digital Education Technology to Improve the Quality of Educational Output," *Indonesian Journal of Educational Research and Review* 6, no. 2 (2023), <https://doi.org/10.23887/ijerr.v6i2.66039>

¹⁸ Giovanni Septio and Madhakomala, "Integrasi Transformasi Digital dalam Kurikulum dan Pembelajaran Sekolah di Indonesia: Sebuah Tinjauan Sistematis," *Jurnal Manajemen Pendidikan dan Ilmu Sosial* 7, no. 1 (2025), <https://doi.org/10.38035/jmpis.v7i1.6731>

¹⁹ Muhammad Ilyas, Herwin, Ma'rufi, Aprilia Tina Lidyasari, and Augusto da Costa, "Technology Integration in Learning Management: A Post-Pandemic Phenomenological Study in Elementary Schools," *World Journal on Educational Technology* 14, no. 4 (2022), <https://doi.org/10.18844/wjet.v14i4.7729>

engagement and the development of digital competencies required for 21st-century learning. The systematic integration of technology not only increases student engagement during the learning process, but also helps teachers create learning experiences that are more engaging, collaborative, and student-centered. Therefore, the use of computer technology needs to be supported by a well-planned learning strategy in order to have a positive impact on learning outcomes.²⁰

Based on the results of observations and interviews, teachers at SDIT Pondok Duta Cimanggis in Depok use computers to deliver lesson content through presentations, educational videos, digital learning applications, and various online learning resources. In addition, students are given the opportunity to engage in hands-on practice so that they not only understand the material theoretically but also gain experience in using technology as part of the learning process. This demonstrates that the use of computer technology has become an integral part of teaching and learning activities and is capable of increasing student participation, strengthening interaction between teachers and students, and creating a more active and innovative learning environment.²¹

Based on these findings, it can be understood that the implementation of computer technology management not only serves as a tool to support learning but also plays a vital role in improving the quality of the teaching and learning process in schools. The systematic use of technology enables teachers to develop a variety of more effective learning innovations, increase student engagement, and strengthen the digital competencies needed to keep pace with technological advancements in the digital age. Thus, the "actuating" function in computer technology management makes a significant contribution to the successful implementation of technology-based learning at SDIT Pondok Duta Cimanggis, Depok.²²

²⁰ Tessa Consoli, Maria-Luisa Schmitz, Chiara Antonietti, Philipp Gonon, Alberto Cattaneo, and Dominik Petko, "Quality of Technology Integration Matters: Positive Associations with Students' Behavioral Engagement and Digital Competencies for Learning," *Education and Information Technologies* 30, no. 6 (2025): 7719-7752, <https://doi.org/10.1007/s10639-024-13118-8>

²¹ Diyah Mintasih, Sukiman, and Sigit Purnama, "Integration of Digital Technology in Islamic Religious Education Learning," *Jurnal Pendidikan Islam* 13, no. 1 (2024): 85-96, <https://doi.org/10.14421/jpi.2024.131.85-96>

²² Ingrid Puji Astri, Emilda, and Faisal Rahman Dongoran, "Tantangan dan Pendukung Integrasi Teknologi Digital dalam Implementasi Kurikulum Merdeka: Sebuah Tinjauan Literatur Sistematis," *Pedagogi: Jurnal Ilmiah Pendidikan* (2025), <https://doi.org/10.47662/pedagogi.v12i1.1348>

Controlling (Supervision) in Computer Technology Management

The results of the study indicate that the supervisory function in the management of computer technology at SDIT Pondok Duta Cimanggis, Depok, is carried out through monitoring and evaluation of computer usage and the implementation of technology-based learning. Supervision is conducted periodically by the principal together with the Information and Communication Technology (ICT) teacher to ensure that all technological devices are utilized in accordance with learning needs. In addition to monitoring the condition of the devices, these monitoring activities are also aimed at assessing the effectiveness of technology in supporting the teaching and learning process, so that any issues identified can be promptly addressed through corrective or maintenance measures.²³

The findings of this study are consistent with the research by Leni Maryani et al., which explains that monitoring and evaluation activities are an important part of educational technology management because they help schools identify the effectiveness of technology use and ensure that all digital programs are implemented in accordance with established objectives. Ongoing evaluation also provides schools with information to determine improvement measures, enhance the quality of educational services, and optimize the use of technology to support the learning process. Therefore, the supervisory function is not only focused on regulating the use of devices, but is also part of efforts to continuously improve the quality of education.²⁴

Based on the results of observations, interviews, and a review of documents, monitoring activities were conducted at SDIT Pondok Duta Cimanggis in Depok to assess the condition of computer equipment, the level of technology use in the classroom, and the various challenges faced by teachers and students during the learning process. The results of this evaluation were then used as the basis for determining equipment maintenance needs, upgrading technological facilities, and developing teacher competency programs. These findings indicate that the monitoring process was carried out systematically, enabling schools to address various emerging issues more quickly and effectively. These findings indicate that the monitoring function serves not only as a control mechanism but also as an

²³ Leni Maryani, Jumaidi Nur, Sri Utami, Ihfa Indira Nurnaifah, and Farida, "Strengthening School Management with Digital Education Technology to Improve the Quality of Educational Output," *Indonesian Journal of Educational Research and Review* 6, no. 2 (2023), <https://doi.org/10.23887/ijerr.v6i2.66039>

²⁴ Leni Maryani, Jumaidi Nur, Sri Utami, Ihfa Indira Nurnaifah, and Farida, "Strengthening School Management with Digital Education Technology to Improve the Quality of Educational Output," *Indonesian Journal of Educational Research and Review* 6, no. 2 (2023), <https://doi.org/10.23887/ijerr.v6i2.66039>

evaluation tool for continuously improving the quality of computer technology management.²⁵

Based on the research findings, it can be understood that the controlling function plays a very important role in ensuring the sustainability of computer technology management in schools. Systematic oversight through monitoring and evaluation enables schools to identify various obstacles, implement continuous improvements, and ensure that the use of technology remains aligned with learning objectives. Thus, oversight not only serves to control the use of technological devices but also forms part of a strategy to improve the quality of digital-based learning through a continuous evaluation process.²⁶

Factors Supporting and Hindering the Management of Computer Technology

The results of the study indicate that the success of computer technology management at SDIT Pondok Duta Cimanggis in Depok is influenced by several supporting factors, namely the principal's commitment to developing technology-based learning, the availability of supporting facilities, teachers' readiness to utilize digital technology, and the establishment of good cooperation among the principal, teachers, administrative staff, and students. This synergy among the school community creates a conducive learning environment, enabling the use of computer technology to be implemented more effectively and sustainably. In addition, the school's policy support for the use of technology also provides teachers with opportunities to develop various instructional innovations in line with advances in digital technology.²⁷

The findings of this study are consistent with the results of research by Beatriz Cabellos, Fazilat Siddiq, and Ronny Scherer, which indicate that school organizational support, the availability of technological facilities, and teachers' positive attitudes toward technology have a significant influence on the intensity of technology use in learning while also promoting the

²⁵ Muhammad Sofyan Atsauri, Sukarman, and Muhammad Aris Kurniawan, "Implementasi Teknologi Digital dalam Penyusunan Rencana Kerja Sekolah: Systematic Literature Review," *Learning: Jurnal Inovasi Penelitian Pendidikan dan Pembelajaran* (2025), <https://doi.org/10.51878/learning.v6i2.8982>

²⁶ Giovani Septio and Madhakomala, "Integrasi Transformasi Digital dalam Kurikulum dan Pembelajaran Sekolah di Indonesia: Sebuah Tinjauan Sistematis," *Jurnal Manajemen Pendidikan dan Ilmu Sosial* 7, no. 1 (2025), <https://doi.org/10.38035/jmpis.v7i1.6731>

²⁷ Leni Maryani, Jumaidi Nur, Sri Utami, Ihfa Indira Nurnaifah, and Farida, "Strengthening School Management with Digital Education Technology to Improve the Quality of Educational Output," *Indonesian Journal of Educational Research and Review* 6, no. 2 (2023), <https://doi.org/10.23887/ijerr.v6i2.66039>

development of students' digital competencies. Schools that are able to provide adequate facilities and foster a culture of collaboration will find it easier to integrate technology into the learning process than schools with limited organizational support. Therefore, the success of technology implementation is influenced not only by technical factors but also by comprehensive support from school administration.²⁸

On the other hand, the study's findings also indicate that the management of computer technology at SDIT Pondok Duta Cimanggis in Depok still faces several challenges, including budget constraints for the procurement and maintenance of equipment, an unstable internet connection, and the need to enhance teachers' digital competencies so they can keep pace with developments in educational technology. Based on the interview results, some computer devices require periodic maintenance to ensure they continue to function optimally, while budget constraints have prevented the procurement and upgrading of devices from being carried out to the fullest extent. These conditions indicate that digital transformation in schools requires support that goes beyond simply providing devices; it also involves enhancing human resource capacity and ensuring sustainable funding. This finding aligns with research by Mustafa, Nguyen, and Gao, which revealed that limited funding, infrastructure, and human resource competencies are the main challenges in implementing educational technology, particularly in schools with limited resources.²⁹

Based on the findings of this study, it can be understood that the success of computer technology management is influenced by the balance between the supporting and hindering factors faced by schools. Leadership support, the availability of facilities, collaboration among school community members, and teacher readiness are key factors in achieving effective technology management. Conversely, budget constraints, device maintenance, internet network quality, and teachers' digital competencies still require attention through the formulation of appropriate policies, human resource capacity building, and sustainable planning. Thus, the success of digital transformation in schools depends not only on the availability of technology,

²⁸ Beatriz Cabellos, Fazilat Siddiq, and Ronny Scherer, "The Moderating Role of School Facilitating Conditions and Attitudes towards ICT on Teachers' ICT Use and Emphasis on Developing Students' Digital Skills," *Computers in Human Behavior* 150 (2024): 107994, <https://doi.org/10.1016/j.chb.2023.107994>

²⁹ Faisal Mustafa, Hoa Thi Mai Nguyen, and Xuesong Gao, "The Challenges and Solutions of Technology Integration in Rural Schools: A Systematic Literature Review," *International Journal of Educational Research* 127 (2024): 102380, <https://doi.org/10.1016/j.ijer.2024.102380>

but also on the school administration’s ability to manage all resources in an integrated manner so as to improve the quality of digital-based learning.³⁰

Management Aspects	Research Findings	Performance Indicators	Significance of the Findings
Planning	Development of a program for the procurement, use, and maintenance of computer equipment	Needs analysis, coordination meetings, development of work plans	The management program is designed to meet learning needs.
Organization	Division of Responsibilities for Computer Technology Management	The principal, ICT teachers, classroom teachers, and administrative staff have clearly defined responsibilities	The organizational structure supports effective technology management.
Implementation	The Use of Computer Technology in the Learning Process	The use of digital media, LCDs, computers, the internet, and educational apps	Technology is used to improve the effectiveness of learning.
Supervision	Monitoring and Evaluation of Computer Technology Use	Periodic evaluations, equipment maintenance, and follow-up on evaluation results	Monitoring ensures the sustainability and optimal use of technology.

Table 1. Research Results

³⁰ Inggrid Puji Astri, Emilda, and Faisal Rahman Dongoran, "*Tantangan dan Pendukung Integrasi Teknologi Digital dalam Implementasi Kurikulum Merdeka: Sebuah Tinjauan Literatur Sistematis*," *Pedagogi: Jurnal Ilmiah Pendidikan* (2025), <https://doi.org/10.47662/pedagogi.v12i1.1348>

Conclusion

Based on the results of observations, interviews, and a review of documents conducted at SDIT Pondok Duta Cimanggis in Depok, it can be concluded that computer technology management has been implemented through the functions of planning, organizing, executing, and monitoring in a structured manner, thereby supporting technology-based learning at the school. These findings indicate that the successful use of computer technology is not only determined by the availability of devices, but is also influenced by schools' ability to systematically manage all resources in accordance with learning needs.

This study also found that the principal's commitment, a clear division of responsibilities, teacher involvement, and the use of technology in the learning process are key factors that support the effective management of computer technology. On the other hand, budget constraints, ongoing device maintenance, internet network quality, and improving teachers' digital competencies remain challenges that require continuous attention. These conditions indicate that the success of digital transformation in schools depends not only on technological aspects but also on the readiness of the organization and its human resources to manage it.

Thus, this study concludes that the POAC management functions serve as a crucial foundation for implementing effective computer technology management in integrated Islamic elementary schools. These findings reinforce the notion that technology management that is well-planned, organized, consistently implemented, and continuously monitored can support improvements in the quality of learning. Therefore, schools need to continue improving educators' digital competencies, strengthening managerial support, and developing a sustainable evaluation system so that the use of computer technology can be optimized to support the quality of education.

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