ADAARA: Jurnal Manajemen Pendidikan Islam
Accredited Number: 286/DST/C3/HM.01.00/2026
DOI: https://doi.org/10.30863/ajmpi.v16i2.11888
Jounal Homepage: https://jurnal.iain-bone.ac.id/index.php/adara/article/view/11888
Vol 16 Issue (2) 2026

E-ISSN: 2685-4538
P-ISSN: 2407-8107

The Role *of Digital Leadership* in Teacher Literacy Skills Development

Nabila Qathrunnada[1)] , Qomariya Rahma Ayu[2)] , Musyarofatus Sania Putri Wardoyo[3)], Muhammad Nuril Huda[4)], Arif Mansyuri[5)]

[1,2,3,4,5] Universitas Islam Negeri Sunan Ampel Surabaya, Indonesia

e-mail Correspondent: nada.syams1@gmail.com

ABSTRACT
This study aims to analyze the role of the principal's digital leadership in developing teacher literacy skills at Al-Falah Darussalam Junior High School. The study used a qualitative approach with a descriptive type. Data collection was conducted through in-depth interviews, observation, and documentation involving the principal, vice principal, and teachers as research informants. Data validity was tested through source triangulation, technical triangulation, member checking, and increased persistence. Data analysis used the Miles and Huberman model, which includes data reduction, data presentation, and conclusion drawing. The results showed that the principal's digital leadership was manifested through the development of a technology-based learning system, implementation of digital supervision, holding digital literacy workshops, and utilizing the Al-Falah Edu platform to support administration and learning. The principal played an active role in building a culture of digital innovation by continuously strengthening teacher competencies. The implementation of digital leadership had a positive impact on improving teachers' digital literacy skills, as demonstrated by the ability to utilize interactive learning media, the use of digital applications in the learning process, and increasing teacher creativity in developing technology-based learning tools. In addition, the digitalization of learning also encourages the creation of a more interactive, effective, and adaptive learning environment to technological developments. This research shows that digital leadership is a strategic factor in supporting educational transformation and teacher competency development in the digital era.

ARTICLE HISTORY
Received 25 May 2026
Accepted 29 September 2026

KEYWORDS
School Based, Leadership, Digital Literacy

INTRODUCTION

The transformation of education in the digital era requires strengthening teachers' digital literacy as part of essential professional competencies in learning. According to Paul Gilster, digital literacy is the ability to understand and use information from various digital sources effectively (Ebyatiswara Putra et al., 2023). In the context of education, technological literacy is not only related to teachers' ability to operate digital devices, but also includes pedagogical competence, digital ethics, professional identity management, and the ability to adapt to the development of technological innovations such as artificial intelligence (Suryani, 2026). Thus, teacher literacy is understood as a multidimensional competency that needs to be developed in a sustainable manner (Desiga & Liswati, 2025). However, various studies show that the level of teachers' digital literacy is still not optimal, resulting in an impact on the limitations of learning innovations (Bakhri & Mauladani, 2025). In Indonesia, the challenge of digital literacy is still a strategic issue. The status of Indonesia's Digital Literacy in 2022 has increased. In that year, the index rose from 3.49 to 3.54. The three pillars that have increased are Digital Skills, Digital Ethics, and Digital Safety. Meanwhile, Digital Culture has decreased slightly (Rizki Ameliah et al., 2022). Data shows that teachers' digital literacy competencies are still at the level of users of simple learning media. Data in the study shows

that teachers' digital literacy competencies are still limited (Reksiana et al., 2024), so they require systemic intervention through education policy and leadership. In this case, school leadership plays an important role in encouraging the improvement of teacher competence, especially through *a* digital leadership approach.

In this context, the digital competence of school principals is an important foundation in supporting technological transformation in schools and the role of digital leadership is important in ensuring the success of technology integration in the school environment (Lebang & Azainil, 2025). School principals are required to have the ability to understand and direct the systematic use of technology so that it is integrated in the learning process. In addition, school principals play a strategic role in managing digital transformation through the functions of planning, organizing, implementing, and supervising technology-based programs (Frizdew et al., 2025). Thus, the success of digital transformation in schools is greatly influenced by leadership capacity in managing change and optimizing the use of educational technology. At Al Falah Darussalam Junior High School, these efforts can be seen through the principal's policy that encourages teachers to abandon conventional learning patterns and start developing learning that is more creative, interactive, and in accordance with technological developments. The principal also emphasized that digital leadership has an important role because the implementation of school programs is currently increasingly dependent on technological support.

Digital leadership is the ability of leaders to integrate digital technology into leadership practices to improve the performance of educational organizations (F. H. Wibowo & Wartini, 2025). Leaders who have digital competence are able to create a culture of innovation, facilitate the use of technology, and encourage sustainable teacher professional development. A number of studies show that digital leadership has a significant influence on increasing teacher innovation (Prasetyo et al., 2025). In addition, other studies show that digital leadership has a significant influence on organizational performance and teaching performance (Aprilia et al., 2026; Aini et al., 2024) . Therefore, systematic and sustainable efforts are needed from school principals in directing, fostering, and developing teachers' digital literacy skills as part of improving the quality of learning. An adaptive and visionary leadership model is needed in developing teachers' literacy skills without neglecting spiritual values and character. Although various studies have discussed digital leadership in the school environment, the focus of research still tends to be on managerial aspects and technology implementation. Meanwhile, studies that directly link the role of digital leadership to the development of teachers' literacy skills are still limited (Frizdew et al., 2025). In addition, research in the context of religious-based junior high schools has also not been widely conducted. This research presents an update by placing digital leadership as a strategic factor in the development of teacher literacy, as well as examining its implementation contextually in Al Falah Darussalam Junior High School.

This research specifically aims to analyze the role of digital leadership of school principals in the development of teachers' digital literacy skills at Al-Falah Darussalam Junior High School, including the leadership strategies implemented, the development programs held, and the supporting and inhibiting factors in its implementation. The focus of this research is different from previous research because it not only discusses digital leadership in the context of school technology transformation in general, but emphasizes more on how digital leadership can form, improve, and develop teachers' literacy skills in a sustainable manner in the Islamic education environment. Teachers' digital literacy skills are an important need in facing educational transformation in the digital era because they affect the quality of learning, teacher creativity, and

adaptability to educational technology developments (Judijanto, 2024). Thus, this research is here to complement the shortcomings of previous research by providing an empirical overview related to the implementation of digital leadership that is oriented towards strengthening teacher competence, especially in the use of learning technology effectively, creatively, and innovatively in the modern Islamic education environment.

In addition, this study aims to test the argument that the implementation of digital leadership of school principals has an influence on improving teachers' literacy skills through school digital policies, technology training, digital-based supervision, and the creation of innovative learning cultures. This research is expected to prove that the success of digital transformation in schools is not only determined by the availability of technology facilities, but also influenced by the ability of school principals to build a digital vision, provide professional support, and create a work environment that is adaptive to technological developments. Previous research shows that digital leadership has a significant influence on improving teacher teaching performance, technological adaptability, and teachers' readiness to face educational changes in the digital era (Prasetyo et al., 2025). In addition, other research also shows that digital leadership and digital literacy contribute to teachers' readiness to face changes in technology-based education through strengthening teachers' psychological capital (Aprilia et al., 2026). Therefore, the main argument to be tested in this study is that digital leadership that is applied systematically and sustainably can improve teachers' literacy skills, both in the use of digital media, technology-based learning management, and the development of learning innovations in accordance with the needs of 21st century education.

RESEARCH METHODS

This research uses a qualitative approach with a descriptive type of research. This approach was chosen to deeply understand the role of digital leadership in developing teachers' literacy skills based on real conditions in the field. The research was carried out at Al Falah Darussalam Tropodo Junior High School, Waru Sidoarjo. This school was chosen purposively because of its relevance to the focus of the study, especially in terms of the implementation of digital leadership and the development of digital literacy of educators. ICP Al-Falah Darussalam Junior High School and Junior High School is a school that integrates international education standards with Qur'anic values and moral values. Through the Cambridge approach, HOTS (Higher Order Thinking Skills)- based learning, project-based learning, and English language strengthening, students are guided to think critically, creatively, and be able to compete globally without abandoning Islamic values. In addition, the school is supported by professional teachers who create an inspiring and characterful learning atmosphere. Various excellent programs such as Tahfidz, leadership development, digital learning, and international extracurriculars are also a means of developing students' potential to become an intelligent, confident, and noble generation.

This research was carried out for approximately two months, from April to May 2026. The time range includes the preparation and preparation of instruments, data collection in the field, data analysis, and the preparation of the final research report. Data collection techniques are carried out through in-depth interviews, observations, and documentation (Creswell & Creswell, 2018). Interviews are used to obtain information related to digital leadership practices and teacher literacy development, observations are made to observe the use of technology in learning, while documentation is used as supporting data in the form of school programs, policies, and archives. The subjects of the research are determined purposively, including principals, vice principals and

teachers involved in the implementation of learning technology. Before data collection is carried out, the researcher first compiles and develops research instruments. The instruments used are to create semi-structured interview guidelines that are compiled based on the study of digital leadership theory and teacher digital literacy as well as observation sheets used to observe the use of technology in the learning process in the classroom.

The validity of the data in this study was carried out through source triangulation techniques and triangulation techniques (Sudaryono, 2019). Source triangulation was carried out by comparing information obtained from various informants, namely principals, vice principals, and teachers to see the consistency of data related to digital leadership practices and teacher literacy development. Meanwhile, triangulation techniques were carried out by comparing data from interviews, observations, and documentation, so that the information obtained could corroborate each other. In addition, the researcher also used the member check technique, which is by reconfirming the results of interviews or provisional findings to the informant to ensure the suitability of the meaning and avoid misinterpretations (Prasetia, 2022). The researcher also increased diligence through repeated and in-depth observations of the situation in the field so that the data obtained was more accurate. Thus, the validity of the data can be guaranteed through a systematic and continuous verification process.

Data analysis was carried out using the Miles and Huberman model, which included the stages of data reduction, data presentation, and conclusion drawn. The informants in the study were conducted from in-depth interviews with principals, deputy heads of curriculum, and teachers to explore understanding, strategies, and empirical experiences related to the implementation of digital leadership and teachers' digital literacy skills. Meanwhile, secondary data included official school documents, such as vision and mission, organizational structure, teacher performance evaluation reports, supervision results, and archives of teacher professional development activities, which were used to strengthen and verify the findings of the interviews. The principal plays the role of a key informant because of his strategic position in initiating and managing the digital leadership process.

RESULTS AND DISCUSSION

Research Results

This research was carried out at Al-Falah Darussalam Junior High School using a descriptive qualitative approach. Data collection was carried out through in-depth interviews with school principals, vice principals and several subject teachers. Based on the results of the interviews, several main findings were found related to the implementation of digital leadership of school principals and their impact on the development of teachers' digital literacy skills.

Implementation of Digital Programs at Al-Falah Darussalam Junior High School

Based on the results of interviews with principals and teachers, data was obtained that digital leadership is implemented through various technology-based school policies and programs. The principal said that a leader must be able to keep up with technological developments and utilize digitalization in school management and learning. Teachers are directed to create creative and innovative learning according to technological developments. In addition, Al-Falah Darussalam Junior High School has developed and operates an internal digital platform called Al Falah Edu. This platform is used as an integrated learning management system, including uploading learning materials, conducting online exams (Mid-Semester Sumtif/STS and End-of-

Semester Sumtifive/SAS), task management, assessment, and automatic reporting of learning outcomes. Then, the school also uses Google Drive as a medium for monitoring and supervising teachers' activities in uploading materials and collecting grades. The principal stated:

> "Teachers can upload learning materials, exam questions, assignments, and assessments into the system. Through this system, school leaders can also monitor teacher activities, such as collecting grades, uploading materials, and completing learning administration."

In addition to internal platforms, schools also use social media as a means of publication of school activities, including Instagram and TikTok. Every student and school activity is documented in the form of photos and videos as part of the public information disclosure strategy.

The findings of the study show that the principal of Al-Falah Darussalam Junior High School plays an active role as a digital leader. The principal consistently encourages all teachers to utilize digital technology in the learning process. This is reflected in the policies, training, and supervision system that are systematically built.

The principal emphasized that digital leadership is very important because all school programs currently require technological support. Learning is no longer enough to be done with lecture methods alone, teachers must be able to create a comfortable, fun, and interactive learning atmosphere through the use of digital media.

The results of the interviews show that teachers are starting to get used to using technology in the learning process. In the learning process, teachers routinely use various digital media, including interactive PowerPoint, learning videos, mind mapping, interactive quizzes, and educational games. Schools have also provided Interactive Flat Panels (IFPs) that can be touched directly instead of conventional whiteboards and LCDs. Some teachers use quizze-based learning applications to increase students' interest in learning to make the learning atmosphere more fun and interactive.

However, there are several challenges in the implementation of *digital leadership*, especially related to the use of gadgets or digital devices by students. Schools apply restrictions on the use of cellphones and only allow them under certain conditions such as when digital devices are needed for certain learning activities or digital-based exams. This policy is implemented so that students do not experience dependence on gadgets and can still use technology wisely.

Developing Teachers' Literacy Skills Through Digital Leadership

In supporting the development of teachers' digital literacy skills, schools routinely hold workshops and coaching every semester. The training discusses the use of digital media, AI, learning applications, and the development of teachers' creativity in technology-based learning. Teachers also participate in training outside of school, MGMP, and KKG as an effort to improve digital competence.

The school routinely holds workshops and coaching related to the digital transformation of learning every semester. The training program includes the use of artificial intelligence (AI) in learning, digital-based classroom management, and the development of creative learning media. In addition to internal training, each semester the school also presents external resource persons to provide training on the use of digital media and AI.

Teachers are also encouraged to actively participate in the activities of MGMP (Subject Teacher Deliberation) and KKG (Teacher Working Group) as a forum for community-based professional development. One of the teachers stated that the training that was followed included

the use of AI in learning, fun classroom management, and the use of websites and applications to facilitate the preparation of learning tools.

School principals and school leaders actively supervise the use of technology by teachers through the school's digital system. All learning activities can be monitored in *real-time*. Teachers who have not uploaded materials, questions, or grades will be immediately known by school leaders so that follow-up can be carried out immediately.

Evaluation of teachers' digital abilities is carried out through monitoring activities in the school system. Teachers who actively use digital media can be seen from the completeness of administration, learning media, and online learning activities. The principal assessed that teachers' ability to use technology has increased significantly since the digitalization program has been carried out consistently.

The Impact of Digital Leadership on Improving Teacher Literacy

Teachers admitted that there was an increase in their ability to use technology after participating in various trainings. Learning media has become more interesting, creative, and interactive than before. The role of teachers today is no longer only as a material presenter, but also as a facilitator who encourages students to actively search for and process information independently.

In addition, digital leadership has an impact on improving teachers' literacy skills. Teachers become more creative in creating learning media, more actively using technology, and more innovative in delivering learning materials. Teachers also said that digital training helps them create learning media that is more interesting than before.

One of the significant digital literacy achievements at Al-Falah Darussalam Junior High School is a literacy project in Indonesian subjects, where students are directed to create fictional works as a school literacy project. This project started from grade VII and was presented in grade IX. Some of the students' works have even been printed into books with ISBNs, as tangible evidence of the positive impact of digitization of learning on literacy culture.

Digital leadership also has an impact on changing teachers' work culture to be more active, adaptive, and accustomed to using technology in learning and school administration. Students become more comfortable and enthusiastic in participating in learning because of the use of more interactive digital media.

DISCUSSION

Implementation of *Digital Leadership* at Al Falah Darussalam Junior High School

Digital leadership is the ability of leaders to use digital technology strategically to encourage organizational transformation, improve service quality, and develop human resource capacity. In the context of education, the digital leadership of school principals consists of the ability to develop a digital vision, develop teacher professionalism through technology, manage information system-based data, build a culture of innovation, and ensure data ethics and security (Frizdew et al., 2025). Digital leadership is an important factor in supporting the creation of effective, innovative, and relevant learning to technological developments in the modern era.

Research findings at Al-Falah Darussalam Junior High School show that school principals have implemented digital leadership comprehensively. The digital era has changed the role of school principals from traditional managers to digital leaders who facilitate, direct, and accelerate the integration of technology in learning (Rosmini et al., 2024). This is in line with conditions in

the field, namely school principals not only encourage the use of technology normatively, but also build digital infrastructure in the form of the Al-Falah Edu platform which is the backbone of the school's academic operations.

One of the important dimensions of digital leadership is the ability of school principals to lead technology-based transformation at the junior high school level. Effective digital leadership requires school principals to not only understand technology, but also to be able to use it to improve efficiency, teaching quality, and student learning outcomes (Nugroho & Hidayati, 2023). From here, school principals are required to be the main driver in creating a learning environment that is adaptive to the development of digital technology.

The Al-Falah Edu platform developed by the school is a tangible manifestation of the dimension of digital leadership in data management and technology-based decision-making. The digital leadership of school principals has been proven to increase the use of information systems from a very low number to reach 89% within two years through a strong vision, infrastructure development, and data literacy culture (Pujianti & Saleh, 2025). This proves that the digital leadership of school principals plays an important role in encouraging the effectiveness of technology-based education management in schools.

The implementation of digital leadership at Al-Falah Darussalam Junior High School is also reflected in the success of the principal in building an integrated digital supervision system. The digitalization of academic supervision by the principal has been proven to have a positive impact on the quality of teacher performance, because the leader is able to monitor learning activities in real-time and carry out fast and measurable follow-up (R. Nur Amalia et al., 2024). This shows that digital supervision can increase the effectiveness of supervision and support the continuous improvement of teacher professionalism.

Findings at Al-Falah Darussalam Junior High School show that the Al-Falah Edu system provides opportunities for school principals to monitor all teacher activities digitally, starting from uploading materials, completing exam questions, assessments, to recapitulation of student scores. The development of an academic supervision model with the use of digital platforms has been proven to significantly improve teachers' digital literacy competencies, because teachers are encouraged to continue to be active and update their digital abilities to meet the standards set by the system. School principals also use data from the digital system as a basis for evaluating teacher performance. Teachers who actively use digital media are identified from the completeness of their digital administration, so that development interventions can be carried out in a targeted manner. The implementation of structured academic supervision of school principals can actually improve teacher performance, especially in the dimensions of learning planning and media use (Andreas et al., 2025). These findings show that digital-based academic supervision is able to improve teacher discipline, competence, and professionalism in carrying out learning in the digital era.

In addition, the principal's digital leadership policy at Al-Falah Darussalam Junior High School also touches on the aspect of using social media (Instagram, TikTok) as a means of documenting and publishing school activities. This reflects that the principal understands the broader digital ecosystem, not only limited to learning technology, but also communication and branding of educational institutions. Digital leadership has been successfully identified as a strategic force in overcoming various educational problems in Indonesia, including increasing the transparency and accountability of the institution (Erwani et al., 2023). The principal's digital leadership not only supports the learning process, but also strengthens the image and openness of schools in the digital era.

The implementation of digital leadership at Al-Falah Darussalam Junior High School includes five main dimensions, namely a clear and measurable digital vision, technology-based teacher professional development, digital management of data and resources, building a culture of innovation in the school environment, and the application of wise technology use ethics, especially in the context of restricting the use of students' cellphones. These five dimensions run synergistically under the leadership of the principal who is visionary and adaptive to technological developments.

Furthermore, teachers who have good digital literacy can use technology not only as a teaching tool, but also as a medium to develop creativity, encourage collaboration, and increase learning effectiveness (Wiguna, 2023). Therefore, teachers' digital literacy is an important factor in creating a learning process that is innovative, interactive, and in accordance with the needs of students in the modern era.

Research at Al-Falah Darussalam Junior High School revealed that school principals apply a layered strategy to improve teachers' digital literacy. The first strategy is to hold regular workshops and training every semester. The digital leadership of school principals that contains digital competency training has proven to be a key factor in accelerating teachers' readiness to face the Society 5.0 era (Mustiningsih et al., 2024). This condition confirms that continuous training and workshops can improve teachers' ability to effectively utilize digital technology in learning. The second strategy is to strengthen teachers' digital literacy through professional community-based mentoring, namely teacher involvement in MGMP and KKG. Strengthening digital literacy has been proven to significantly improve teacher performance, especially when combined with supportive leadership and a work culture that is adaptive to technology (Hasanah & Sukri, 2023).

This condition proves that collaboration in the professional community can help teachers improve digital literacy skills and the quality of learning in a sustainable manner. The third strategy is the implementation of a school principal program that focuses on the use of information technology and digital literacy. The implementation of programs by school principals in a structured and sustainable manner has been proven to improve teachers' ability to use information technology and digital literacy, although the initial conditions of teachers' abilities in this case are still diverse (Dikdik et al., 2024). The fourth strategy is the integration of digital literacy in the curriculum and project-based learning. At Al-Falah Darussalam Junior High School, this is manifested in the form of student fiction work projects, some of which have been published with ISBNs. Digital literacy in Islamic education is not just the mastery of technological tools, but also includes the ability to filter information, create meaningful content, and integrate Islamic values in the use of technology. Research shows that digital literacy plays an important role in students' ability to learn, collaborate, and overcome challenges in the digital era (Judijanto, 2024). This confirms that the integration of digital literacy in project-based learning is able to increase creativity, critical thinking skills, and students' ability to utilize technology positively and responsibly.

These strategies show that the principal of Al-Falah Darussalam Junior High School not only plays the role of an administrative leader, but also as a digital transformation agent who actively builds teacher capacity in a sustainable manner. Analysis of the level of digital literacy of teachers and students shows that the quality of learning in the digital era depends on how much support school leadership has in facilitating the digitalization process systematically and inclusively (Judijanto, 2024). Therefore, the success of digital transformation in schools is greatly influenced

by the role of principals in providing support, direction, and development of digital competencies for teachers in a sustainable manner.

Developing Teachers' Literacy Skills Through Digital Leadership

The development of teachers' literacy skills is an important part of the implementation of digital leadership in schools. According to Paul Gilster (Ebyatiswara Putra et al., 2023), digital literacy is the ability to understand and use information from various digital sources effectively. In the context of education, technological literacy is not only related to teachers' ability to operate digital devices, but also includes pedagogical competence, digital ethics, professional identity management, and the ability to adapt to the development of technological innovations such as artificial intelligence (Suryani, 2026). Therefore, teacher literacy is understood as a multidimensional competence that needs to be developed sustainably (Desiga & Liswati, 2025). At Al Falah Darussalam Junior High School, these efforts can be seen through the principal's policy that encourages teachers to abandon conventional learning patterns and start developing learning that is more creative, interactive, and in accordance with technological developments. The principal also emphasized that digital leadership has an important role because the implementation of school programs is currently increasingly dependent on technological support.

Digital leadership has a strategic role in building an educational culture that is adaptive to technological developments. According to Eric Sheninger, digital leadership is leadership that is oriented towards innovation, the use of technology, and the transformation of school culture towards 21st century learning (Syauqi et al., 2024). The main strategy of school principals in developing teachers' digital literacy is through training and workshops that are held in a structured and sustainable manner (Sari et al., 2025). Digital literacy training has an important role in improving teachers' pedagogic competence and encouraging students' creativity, although in its implementation there are still various obstacles, such as a lack of policy support and the lack of optimal use of digital platforms (Asriyanik et al., 2025). As a response to these challenges, Al Falah Darussalam Junior High School routinely holds workshops every semester that discuss the use of artificial intelligence (AI) in learning, digital-based classroom management, and the development of creative learning media. In addition, the school also presents external resource persons to provide the latest insights related to the use of digital media and AI technology in education. This step is taken so that teacher competency development can take place consistently and keep up with the latest educational technology developments.

In addition to internal training, teacher literacy development is also strengthened through active involvement in the professional community. The development of teachers' digital competencies is carried out collaboratively through team formation, role sharing, and cooperation involving various parties in an adaptive and sustainable manner (Yusniar et al., 2024). At Al Falah Darussalam Junior High School, teachers are encouraged to actively participate in Subject Teacher Deliberation (MGMP) and Teacher Working Group (KKG) activities as a means of sharing knowledge and experience with teachers from other schools. One of the teachers said that the training that was attended not only discussed the use of AI in learning, but also fun classroom management and the use of websites and applications to facilitate the preparation of learning tools. The involvement of teachers in the professional community is a supporting factor in the development of digital literacy because it allows for a joint learning process and the exchange of experiences according to the competence of each teacher (H. A. Wibowo, 2025).

Teacher literacy development is not only carried out through training, but also requires continuous mentoring and supervision. Supervision and collaborative learning have proven to be effective in improving teachers' abilities, especially in designing digital learning resources, so that supervision is an important part of the principal's responsibility in improving teacher professionalism and supporting the achievement of educational goals (Romlah et al., 2025). At Al Falah Darussalam Junior High School, supervision is carried out digitally through real-time monitoring of teachers' activities on school platforms. The use of digital media by teachers can be seen from the completeness of learning administration, the quality of the media used, and the consistency of the implementation of online learning. Through this mechanism, teachers are gradually encouraged to be more active and accustomed to integrating technology in the implementation of their professional duties (Shelvia, 2020).

As a result of the development process carried out systematically, teachers' creativity and innovation in designing learning showed a significant increase. Effective digital leadership is able to integrate strategic vision, teacher capacity building, data management policies, and collaborative culture so as to improve the readiness and quality of technology-based learning (Muis et al., 2026). At Al Falah Darussalam Junior High School, teachers acknowledge that there is an increase in their ability to utilize technology after participating in various training programs organized by the school. The role of teachers is no longer limited to delivering materials, but develops into facilitators who encourage students to actively search, manage, and understand information independently. In addition, teachers become more creative in developing learning media, more actively utilizing technology, and more innovative in delivering materials. This condition shows the success of teacher literacy development supported through the implementation of digital leadership by school principals.

The Impact of Digital Leadership on Improving Teacher Literacy

The findings of this study show that the implementation of digital leadership at Al-Falah Darussalam Junior High School provides evidence of the impact on improving teachers' digital literacy. This impact can be seen from changes in teachers' behavior patterns in utilizing digital technology, both in the context of learning planning, material delivery, classroom management, and school administration. This finding is in line with the conceptualization of digital leadership which defines it as the strategic use of technology to improve leadership practices while empowering the entire school community (Sheninger, 2014). Within the framework of this theory, Sheninger introduced seven pillars of digital leadership, one of which is professional learning, namely the commitment of leaders in encouraging sustainable teacher professional development through digital platforms and ecosystems. The principal of Al-Falah Darussalam Junior High School implemented this pillar through the implementation of semester workshops, digital monitoring via Google Drive, and the implementation of the Al-Falah Edu system as a technology-based learning infrastructure that is the foundation for the growth of digital literacy culture among educators.

From an empirical perspective, the impact of digital leadership on teacher technology integration has been proven in various cross-border studies. Research on 404 elementary school teachers in Kuwait shows that the digital leadership of school principals has a positive effect on the use of technology in learning, especially during the disruption of the COVID-19 pandemic. The research also shows that leaders who have digital competence are able to build a school environment that supports the optimal use of technology by teachers (AlAjmi, 2022). These

findings are relevant to the conditions at Al-Falah Darussalam Junior High School, where the principal plays an active role in encouraging digital transformation through technology-based policies, the provision of school digital systems, and strengthening the use of digital learning media. Thus, the principal not only functions as an administrative manager, but also as a main driver in the development of teachers' digital literacy.

One of the most prominent impacts identified in this study is the change in teachers' work culture to be more adaptive, active, and innovative in using technology. Teachers at Al-Falah Darussalam Junior High School are starting to get used to using interactive PPTs, learning videos, digital quiz applications, and technology-based learning projects such as making digital presentations and student written papers. Research on teachers' digital literacy in the digital era shows that adaptive leadership and a supportive organizational culture are two main variables that affect the level of teachers' digital literacy (Bakhri et al., 2025). Visionary leadership of school principals, as manifested at Al-Falah Darussalam Junior High School, has proven to be a catalyst in shaping an organizational culture that favors innovation and the development of digital competencies collectively.

Furthermore, the semester workshop program organized by the school is a concrete manifestation of the professional learning community (PLC) facilitated by the digital leadership of the principal. *A* professional learning community is defined as a group that shares and evaluates practices in a reflective, collaborative, inclusive, and professional growth-oriented manner as a sustainable collective effort (Stoll et al., 2006).

In the context of this study, a digital workshop that discusses the use of AI, learning applications, and the creativity of teaching media is a tangible implementation of the PLC principle. Teachers are not only the object of training, but are also encouraged to share experiences and innovations in professional learning communities facilitated by school principals. Other research shows that digital leadership has a significant effect on teacher teaching performance in schools, with structured digital training programs being an important mediating variable in the relationship (Prasetyo et al., 2025). Therefore, the success of improving teacher literacy at Al-Falah Darussalam Junior High School cannot be separated from institutional commitment in building digitally facilitated learning communities.

In addition to the school's internal program, Al-Falah Darussalam Junior High School teachers also participate in external competency development activities through the Subject Teacher Conference (MGMP) and the Teacher Working Group (KKG). Participation in this cross-institutional professional community reflects the networked professional learning ecosystem that expands the scope of teachers' digital literacy development beyond school boundaries.

Research shows that the role of digital leadership of school principals in optimizing technology-based learning includes the functions of planning, organizing, implementing, and supervising technology programs systemically, including in encouraging teacher involvement in external professional learning networks (Frizdew et al., 2025). In line with that, the findings of this study show that school principals not only encourage teachers to participate in internal training, but also provide facilities and support for teacher involvement in broader professional development forums. This indicates that the digital leadership applied at Al-Falah Darussalam Junior High School is ecological, namely building teachers' literacy capacity from within while expanding their professional network to the outside.

Another aspect that strengthens the impact of digital leadership on teacher literacy is the implementation of an internal digital system called Al-Falah Edu and the use of Google Drive as

an instrument for real-time monitoring and supervision of teachers' activities. These two platforms serve a dual purpose: as a learning medium that encourages teachers to continue to utilize technology, as well as a digital accountability system that ensures consistency in the use of technology in the learning process. The Al-Falah Edu system , which includes uploading materials, working on assignments, conducting online exams, and grade input, reflects the integration of technology in the entire school education ecosystem, which in turn encourages teachers to consistently develop their digital literacy competencies in their daily lives.

The impact of digital leadership on teacher literacy ultimately leads to improving the quality of student learning. Teachers who have high digital literacy are able to create learning experiences that are more interactive, interesting, and relevant to the needs of the digital generation. Students who become more comfortable and enthusiastic participate in learning as teachers use more varied digital media. This finding is strengthened by emphasizing that digital leadership is a planned and strategic effort to increase educator innovation in elementary schools, where teachers supported by good digital leadership show increased creativity and adaptability in the development of learning media (Aini et al., 2024). Thus, the chain of impact of digital leadership at Al-Falah Darussalam Junior High School can be clearly traced: from the digital competence of the principal, to the development of teacher literacy through various technology-based programs, to leading to improving the quality and innovation of learning in the classroom.

Nevertheless, the implementation of digital leadership at Al-Falah Darussalam Junior High School is inseparable from challenges, especially related to the management of gadget use by students. The school implements a policy of restricting the use of personal devices and only allowing them under certain conditions such as digital-based exams, as an effort to maintain a balance between optimal use of technology and controlling the risk of misuse. This challenge is a reflection of the complexity of implementing digital leadership in the Islamic education environment which must integrate spiritual values and Islamic characters with the demands of digital technology development. In a study on the digital literacy competence of teachers, Islamic Religious Education stated that teachers' digital literacy competencies are still at a limited level and require systemic intervention through comprehensive educational policies and leadership (Reksiana et al., 2024). These findings confirm that improving teachers' digital literacy is not just a technical process, but also a process of transforming values and culture that requires strong, adaptive, and characterful leadership.

Overall, the findings of this study make a significant empirical contribution to the discourse of digital leadership in the context of Islamic education in Indonesia. This study expands Shennger's theoretical perspective by showing that the seven pillars of digital leadership can be implemented contextually in a high school environment based on Islamic values, by paying attention to the balance between digital modernization and the preservation of institutional identity. In another recent study on the influence of digital literacy and digital leadership on teachers' readiness to face change through psychological capital, it was found that the two variables reinforce each other in forming teacher resilience and adaptability in the era of digital transformation (Aprilia et al., 2026). These findings strengthen the argument that digital leadership is not only a managerial instrument, but also a long-term investment in human resources that builds the collective capacity of schools to face the challenges of the industrial era 4.0 and enter the era of Society 5.0. The implications for education policy are the need to develop a comprehensive digital leadership training program for school principals, accompanied by a standardized and sustainable curriculum for teacher digital literacy development at all levels of education.

CONCLUSION

The implementation of digital leadership at Al-Falah Darussalam Sidoarjo Junior High School includes digital vision, technology training, digital data management, innovation culture, and ethical use of technology. Teachers' digital skills are improved through a series of organized and sustainable programs. The impact can be seen in increasing creativity, innovation, and teachers' abilities in digital learning. Researchers realize that digital leadership is an important factor to support innovative and adaptive learning. However, the research is limited to one school with a qualitative approach, so the results cannot be generalized. It is suggested that for future research, quantitative methods or mixed methods can be used in several schools and educational environments to measure the effectiveness of digital leadership more comprehensively.

REFERENCES

Aini, S. D., Kholifah, S. R., Nurmaya, E. P. F., Hervanda, F. S., & Argadinata, H. (2024). Kepemimpinan Digital : Upaya Peningkatan Inovasi Pendidik di Sekolah Dasar. *Proceedings Series of Educational Studies Seminar Nasional Dan Prosiding PGSD FIP UM 2024*, 12.

AlAjmi, M. K. (2022). The impact of digital leadership on teachers' technology integration during the COVID-19 pandemic in Kuwait. *International Journal of Educational Research*, *112*. https://doi.org/10.1016/j.ijer.2022.101928

Andreas, Repelita, T., Akmal, M. I., & Danajaya, M. A. S. A. (2025). Implementasi Supervisi Akademik Kepala Sekolah dalam Meningkatkan Kinerja Guru. *Kelola: Jurnal Manajemen Pendidikan*, *12*(1), 59–72. https://doi.org/10.51874/jips.v5i2.270

Aprilia, R., Fahmi, R., & Rivai, H. A. (2026). Pengaruh Literasi Digital dan Kepemimpinan Digital terhadap Kesiapan Guru dalam Menghadapi Perubahan Melalui Modal Psikologis. *Jurnal Economic Resource*, *9*(1), 798–810. https://doi.org/10.57178/jer.v9i1.2214

Asriyanik, A., Pambudi, A., & Uswatun, D. A. (2025). Peningkatan Kompetensi Guru Sekolah Dasar melalui Pelatihan AI dan Literasi Digital. *Jurnal Altifani Penelitian Dan Pengabdian Kepada Masyarakat*, *5*(5), 661–669. https://doi.org/10.59395/altifani.v5i5.829

Bakhri, S., Buchori, B., & Mauladani, A. (2025). Literasi Digital Guru Di Era Digital: Dampak Kepemimpinan Melayani dan Budaya Organisasi Adaptif Terhadap Penguatan SDM. *Jurnal Manajemen Terapan Dan Keuangan*, *14*(03), 1390–1401. https://doi.org/10.22437/JMK.V14I03.48128

Bakhri, S., & Mauladani, A. (2025). Literasi Digital Guru Di Era Digital: Dampak Kepemimpinan Melayani Dan Budaya Organisasi. *Jurnal Manajemen Terapan Dan Keuangan (Mankeu)*, *14*(3), 1390–1401. https://doi.org/https://doi.org/10.22437/jmk.v14i03.48128

Creswell, J. W., & Creswell, J. D. (2018). Research Design Qualitative, Quantitative, and Mixed Methods Approaches Fifth Edition. In *Writing Center Talk over Time*. https://doi.org/10.4324/9780429469237-3

Desiga, H. I., & Liswati, K. N. (2025). Guru Hebat Di Era Digital: Menelusuri Jejak Pengembangan Kompetensi Melalui Studi Literatur. *J-Simbol: Jurnal Magister Pendidikan Bahasa Dan Sastra Indonesia*, *13*(2), 850–858. https://doi.org/https://doi.org/10.23960/simbol.v13i2

Dikdik, A., Suryana, A., Devi, M., & Ruhimat, C. (2024). Identifikasi Kekuatan, Kelemahan, dan Pemanfaatan Digital Leadership untuk Mengatasi Masalah-Masalah Pendidikan di Indonesia. *JAMP: Jurnal Administrasi Dan Manajemen Pendidikan*, *7*(4), 621–633.

Ebyatiswara Putra, A., Taufiqur Rohman, M., Linawati, L., & Hidayat, N. (2023). Pengaruh Literasi Digital Terhadap Kompetensi Pedagogik Guru. *Murhum : Jurnal Pendidikan Anak Usia Dini*, *4*(1), 201–211. https://doi.org/10.37985/murhum.v4i1.185

Erwani, E., Witarsa, R., & Masrul, M. (2023). Penerapan Program Kepala Sekolah terhadap Kemampuan Guru dalam Menggunakan Informasi Teknologi dan Literasi Digital di Sekolah

Dasar. *Journal of Education Research*, *4*(3), 957–963. https://doi.org/10.37985/jer.v4i3.263

Frizdew, B. R., Arifah, W., Gistituati, N., & Rusdinal. (2025). Peran Kepemimpinan Digital Kepala Sekolah Dalam Mengoptimalkan Pembelajaran Berbasis Teknologi. *Jurnal Kepemimpinan Dan Pengurusan Sekolah*, *10*(4), 2273–2284. https://doi.org/https://doi.org/10.34125/jkps.v10i4.1211

Hasanah, U., & Sukri, M. (2023). Implementasi Literasi Digital Dalam Pendidikan Islam : Tantangan dan Solusi. *Equilibrium : Jurnal Pendidikan Vol.*, *XI*(2), 177–188. https://doi.org/https://doi.org/10.26618/equilibrium.v11i2.10426

Judijanto, L. (2024). Analisis Pengaruh Tingkat Literasi Digital Guru dan Siswa terhadap Kualitas Pembelajaran di Era Digital di Indonesia. *Sanskara Pendidikan Dan Pengajaran*, *2*(02), 50–60. https://doi.org/10.58812/spp.v2i02.391

Lebang, R., & Azainil. (2025). Kolaboratif Kepemimpinan dan Guru Dalam Pembentukan Sekolah Berkarakter Melalui Literasi Era Digital. *Jurnal Pendas Mahakam*, *10*(1), 55–64.

Muis, A., Harahap, R., Alidin, R., Thaibur, P. A., & Jinan, A. (2026). Model Pelatihan Edutech Berbasis Komunitas dalam Meningkatkan Kompetensi Guru dan Interaktivitas Pembelajaran di Sekolah. *Jurnal Hasil Pengabdian Masyarakat*, *5*(1), 94–108. https://doi.org/https://doi.org/10.62712/juribmas.v5i1.1000

Mustiningsih, M., Imron, A., Timan, A., Idah, A. ', & Sesanti, H. (2024). Pelatihan Peningkatan Keterampilan Kepemimpinan Digital Kepala Sekolah dalam Upaya Percepatan Digitalisasi Guna Menyongsong Era Society 5.0 di Kota Probolinggo. *JAMP: Jurnal Administrasi Dan Manajemen Pendidikan*, *7*(4), 675–683. http://journal2.um.ac.id/index.php/jamp/

Nugroho, E. P. A., & Hidayati, D. (2023). Implementasi Program Digitalisasi Supervisi Akademik Kepala Sekolah dalam Mutu Kinerja Guru di SMP Muhammadiyah Al Mujahidin Gunugkidul. *AoEJ: Academy of Education Journal*, *14*(2), 1535–1546. https://doi.org/https://doi.org/10.47200/aoej.v14i2.1879

Prasetia, I. (2022). *Metodologi Penelitian : Pendekatan Teori dan Praktik* (Akrim & E. Sulasmi, Eds.; Cetakan I). UMSU Press.

Prasetyo, H., Fathorrahman, F., & Murtianingsih, M. (2025). Pengaruh Digital Leadership, Literasi Teknologi, Dan Fasilitas Digital Terhadap Kinerja Pengajaran Guru Di Sekolah Dasar Rabbaanii Islamic School. *Jurnal Pendidikan Indonesia*, *6*(8), 4085–4099. https://doi.org/10.59141/japendi.v6i8.8543

Pujianti, N., & Saleh, R. (2025). Pemanfaatan Learning Analytics sebagai Alat Pengambilan Keputusan Strategis di Sekolah Dasar. *Jurnal Kepemimpinan Dan Pengurusan Sekolah*, *10*(4), 2364–2369. https://doi.org/https://doi.org/10.34125/jkps.v10i4.1220

R. Nur Amalia, Sri Sundari, & Marisi Pakpahan. (2024). Peningkatan Kinerja Guru SMK Melalui Penguatan Literasi Digital Dan Kepemimpinan Melayani. *Journal of Management and Social Sciences*, *3*(1), 26–37. https://doi.org/10.55606/jimas.v3i1.963

Reksiana, Nata, A., Rosyada, D., Rahiem, M. D. H., & Rafikjon Ugli, A. R. (2024). Digital Extension of Digital Literacy Competence for Islamic Religious Education Teachers in the Era of Digital Learning. *Jurnal Pendidikan Agama Islam*, *21*(2), 402–420. https://doi.org/10.14421/jpai.v21i2.9719

Rizki Ameliah, Rangga Adi Negara, Bahtiar Minarto Tonggo, Marito Manurung, & Maulana Akbar. (2022). *Status Literasi Digital di Indonesia 2022*. https://cdn1.katadata.co.id/media/microsites/litdik/ReportSurveiStatusLiterasiDigitalIndonesia2022.pdf

Romlah, R., Hadi, S., & Sobri, A. Y. (2025). Pengembangan Literasi Digital Untuk Meningkatkan Pembelajaran Melalui Supervisi dan Belajar Kolaboratif pada Guru SDN 1 Jambesari. *Cetta: Jurnal Ilmu Pendidikan*, *8*(1), 42–63. https://doi.org/10.37329/cetta.v8i1.3826

Rosmini, H., Ningsih, N., Murni, M., & Adiyono, A. (2024). Transformasi Kepemimpinan Kepala Sekolah pada Era Digital: Strategi Administrasi Pendidikan Berbasis Teknologi di Sekolah Menengah Pertama. *Konstruktivisme : Jurnal Pendidikan Dan Pembelajaran*, *16*(1), 165–180.

https://doi.org/10.35457/konstruk.v16i1.3451

Sari, D., Hasanah, M., & Faisal, A. (2025). Urgensi Penguasaan Literasi Digital Bagi Guru dan Calon Guru Sekolah Dasar Dalam Menghadapi Tantangan Pembelajaran di Abad 21. *Jurnal Pendidikan Guru Sekolah Dasar*, *2*(4), 8. https://doi.org/10.47134/pgsd.v2i4.1917

Shelvia, B. (2020). Efektivitas Supervisi Akademik Berbasis Digital Dalam Meningkatkan Kinerja Guru Di Era Kurikulum Merdeka. *Equity in Education Journal (EEJ)*, *6*(1), 46–53. https://doi.org/https://doi.org/10.37304/eej.v7i1.21228

Sheninger, E. (2014). *Digital Leadership: Changing Paradigms for Changing Times; The Main Idea Summary PDF*.

Stoll, L., Bolam, R., McMahon, A., Wallace, M., & Thomas, S. (2006). Professional Learning Communities: A Review of the Literature. In *Journal of Educational Change* (Vol. 7, Number 4). https://doi.org/10.1007/s10833-006-0001-8

Sudaryono. (2019). *Metode Penelitian: Kuantitatif, Kualitatif, dan Mix Method* (Cetakan II). PT Raja Grafindo Persada.

Suryani, H. (2026). Transformasi Peran Guru Dalam Pendidikan Era Digital: Sebuah Systematic Literature Review Tentang Adaptasi Pedagogik Dan Literasi Teknologi. *ACADEMIA: Jurnal Inovasi Riset Akademik*, *13*(1), 104–116. https://doi.org/https://doi.org/10.51878/academia.v6i1.9626

Syauqi, M. A. R., Maula, N., & Rofiqoh. (2024). Manajemen Pendidikan Islam Berbasis Digital Leadership Menghadapi Disrupsi Pendidikan. *Edulead : Journal of Education Management*, *6*(1), 31–38.

Wibowo, F. H., & Wartini, S. (2025). Peran Digital Leadership dalam Meningkatkan Kinerja Organisasi di Era Transformasi Digital. *Manajemen SDM*, 51–73. https://doi.org/https://doi.org/10.15294/msdm.v1i1.300 QRCBN 62-6861-4243-013

Wibowo, H. A. (2025). Strategi Kepala Sekolah Dalam Meningkatkan Literasi Digital Siswa Melalui Platform Digital Sosial Di Smp Negeri 42 Semarang. *Jurnal Manajemen Pendidikan (JMP)*, *14*(3), 463–471. https://doi.org/https://doi.org/10.26877/jmp.v14i3.25592

Wiguna, K. A. (2023). Analisis Kompetensi Literasi Digital pada Guru Sekolah Menengah Atas. *Jurnal Riset Manajemen Komunikasi*, *3*(1), 21–32. https://doi.org/10.29313/jrmk.v3i1.2316

Yusniar, Salami, Zulfatmi, & Aisyah. (2024). Optimalisasi Kompetensi Literasi Digital Guru PAI Melalui Program KKG Kota Sabang. *Fitrah: Journal of Islamic Education*, *5*(1), 70–80.