

PRINCIPAL AS INSTRUCTIONAL LEADER IN IMPROVING THE QUALITY OF DIGITAL-BASED LEARNING AT SD ISLAM AL-AZHAR 25 SEMARANG

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Abstract

This study aims to analyze the role of school principals as instructional leaders in improving the quality of digital-based learning at SD Islam Al-Azhar 25 Semarang. The method used is a descriptive qualitative approach with phenomenological design. Data was collected through in-depth interviews, participatory observations, and documentation of principals, teachers, and education staff. Data analysis is carried out using thematic analysis techniques through the stages of data reduction, data presentation, and conclusion drawn, and supported by triangulation and member checking to ensure data validity. The results of the study revealed four main findings: (1) school principals carry out the role of instructional leadership comprehensively through annual program-based planning, academic and clinical supervision, and continuous professional development; (2) the implementation of digital learning takes place systematically using the Google Classroom platform and smartboard devices integrated into the curriculum; (3) digital learning has been proven to increase student involvement, motivation, and learning comfort; (4) The success of implementation is determined by the synergy between the principal's leadership, teacher readiness, and infrastructure support. The main inhibiting factors include the digital competency gap between teachers and the potential for misuse of gadgets by students. This study confirms that the quality of instructional leadership of school principals is positively correlated with the success of the implementation of meaningful digital learning.

Keywords: *Principal, instructional leadership, digital-based learning*

A. INTRODUCTION

The era of the industrial revolution 4.0 and society 5.0 has encouraged fundamental transformation in the world of education, especially through the integration of digital technology in the learning process. This development is not just a global trend, but has become a strategic imperative that demands an adaptive response from all education stakeholders, including school principals as institutional leaders. In Indonesia, the digital transformation of education is accelerating after the COVID-19 pandemic which proves that the ability to adapt to digital technology is an essential competency that cannot be ignored (Trust & Whalen, 2020).

In the context of basic education, the integration of technology faces its own complexities. On the one hand, technology offers great potential to create a more interactive, personalized, and contextual learning experience according to the characteristics of 21st-century learners. On the other hand, its implementation in the field still faces various structural and cultural obstacles, ranging from limited infrastructure, gaps in teachers' digital competencies, to weak leadership that is able to drive change systemically and sustainably (Hallinger, 2018).

The role of school principals in this context becomes very critical. The leadership of the principal is no longer enough to stop at managerial and administrative functions alone, but must penetrate into the dimension of instruction, namely the ability to directly influence, guide, and evaluate the learning process in the classroom. The concept of instructional leadership developed by Hallinger and Heck (1998) emphasizes that effective principals are those who are able to create a conducive learning ecosystem, develop teachers' professional capacity, and ensure that every school policy leads to improving the quality of students' learning experience.

Studies on the relationship between instructional leadership and learning quality have been widely conducted in various international contexts. However, research that specifically examines this role in the context of the implementation of digital-based learning in Indonesian Islamic elementary schools is still very limited. This gap is important to fill, considering that Islamic elementary schools have unique characteristics in the form of integrating Islamic values in all aspects of education, including the use of technology.

SD Islam Al-Azhar 25 Semarang was chosen as the research locus because of its representation as an Islamic elementary school that has successfully integrated digital-based learning in its annual work program, supported by active leadership of the principal and adequate infrastructure. This makes the school a relevant case to examine in depth how instructional leadership of school principals is implemented in the context of digital transformation of learning.

Based on this background, this study formulates four research questions: (1) How do school principals carry out the role of instructional leaders in the context of digital-based learning? (2) What strategies are applied in the development of teachers' digital competencies? (3) What are the factors that support and hinder the implementation of digital-based learning? (4) What is the impact of digital-based learning on the quality of student learning processes and outcomes?

This research is theoretically expected to be able to enrich the treasure of literature on instructional leadership in the context of digital Islamic education in Indonesia, as well as make a practical contribution in the form of a management model that can be adapted by other Islamic schools in facing the demands of digital transformation.

B. METHODS

This study uses a descriptive qualitative approach that aims to explore in depth the subjective experience of school principals in carrying out their role as learning leaders and in improving the quality of digital-based learning. This approach was chosen so that researchers can comprehensively understand the reality that occurs in the field based on the perspective of education actors. The subjects in this study include school principals, teachers, and education staff involved in the learning process at SD Islam Al Azhar 25 Semarang. The research was carried out at the school to obtain contextual, in-depth data, and in accordance with the focus of the study being studied.

The data collection technique is carried out through several methods, namely in-depth interviews with school principals in the implementation of digital-based learning. In addition, participatory observation is carried out to directly observe learning activities and interactions that occur in the school environment. Documentation is also used as a source of supporting data, such as school archives, activity reports, meeting minutes, and policies related to the development of digital learning.

The data obtained is then analyzed using thematic analysis techniques, namely by identifying, grouping, and interpreting the main themes that emerge from the research results so that a deeper understanding is obtained. To maintain the validity of the data, this study uses a triangulation technique by comparing data from interviews, observations, and documentation. In addition, *member checking* is also carried out by confirming the findings to the research informant to ensure the suitability and accuracy of the data obtained.

This method is considered in accordance with the research context at SD Islam Al Azhar 25 Semarang, considering that the principal has an active role in developing the quality of digital-based learning and building the school's image through various innovative and structured programs.

C. RESULTS AND DISCUSSION

The Role of Principals as Instructional Leaders in Digital Learning

The results of the study showed that the principal at SD Islam Al-Azhar 25 Semarang carried out a comprehensive instructional leadership role that included four main dimensions: strategic planning, implementation and facilitation, learning supervision, and data-based evaluation.

In the planning dimension, the principal is actively involved in the preparation of an annual work program that integrates the development of digital learning as a strategic priority. The program not only includes a plan for the procurement of technology infrastructure, but also a roadmap for the development of teachers' digital competencies prepared based on the results of the need assessment. The principal initiated the formation of a digital curriculum development team consisting of teachers who already have above-average technological competence, so that the planning process is collegial and participatory.

"We don't just buy technology devices and then hope that machine learning will be better. We carefully design how the technology is used, by whom, in what context, and with what kind of learning objectives," said the principal in an in-depth interview session.

In the implementation dimension, school principals position themselves not only as policy makers, but as role models in technology adoption. School principals routinely use digital platforms in internal communication, coordination meetings, and information distribution, thereby creating a digital culture that permeates the entire school ecosystem. Teachers report that real-life examples from school principals provide motivation and legitimacy for them to continue to develop their digital learning practices.

Academic supervision is carried out through scheduled and unscheduled classroom observations, with observation instruments that include aspects of technology integration in learning. The principal not only observes, but also provides post-observation constructive feedback through individual reflection sessions. In addition, a lesson study model was applied that allowed teachers to observe and reflect on each other's digital learning practices collaboratively.

Teacher Digital Competency Development Strategy

The research findings identify that the development of teachers' digital competencies is carried out through a tiered and sustainable training ecosystem. This program is designed based on the principle of andragogy, which is learning that is centered on the needs and experiences of adults so that it is relevant and applicable to teachers.

At the elementary level, the school conducts training on the use of Google Workspace for Education which includes Google Classroom, Google Meet, Google Forms, and Google Slides. At the intermediate level, teachers are trained in the use of creative design apps like Canva for Education to design engaging learning materials. At the advanced level, teachers are facilitated to explore the use of artificial intelligence in the context of learning, including the use of AI-based tools for content differentiation and formative assessment.

In addition to internal training, the school encourages teachers to participate in external training, national webinars, and join digital learning communities. A special budget is allocated to support teachers' participation in professional development activities outside of school. Teachers who participate in external training are required to disseminate their knowledge to their peers through sharing sessions, so that investment in individual professional development has a collective impact.

Implementation of Digital-Based Learning

The implementation of digital-based learning at SD Islam Al-Azhar 25 Semarang takes place in a structured and integrated manner in the curriculum. Each teacher is required to integrate at least one digital platform or tool in each learning week, with flexibility in choosing the platform that best suits the characteristics of the material and the needs of the students.

The main platform used is Google Classroom as a learning management system (LMS) for material distribution, assignment collection, and assessment. Smartboards and LCD projectors are available in each classroom and are used for interactive presentations. For learning that requires real-time collaboration, teachers use Google Jamboard and interactive quiz apps like Quizizz and Kahoot that have proven effective in increasing student active participation.

The integration of Islamic values in digital learning is also a characteristic of SD Islam Al-Azhar 25. Teachers design digital content that not only meets national curriculum standards, but also integrates Islamic perspectives—for example, the use of animated videos featuring exemplary stories of Islamic figures, or the use of digital platforms to facilitate programmed and monitored memorization of the Quran.

Supporting and Inhibiting Factors

The thematic analysis identified four key factors that support successful implementation: (1) consistent and documented commitment and leadership of principals in formal policies; (2) the availability of adequate and well-maintained technological infrastructure; (3) teacher competency development programs that are sustainable and responsive to actual needs; and (4) a strong culture of collaboration between teachers, as evidenced by the activeness in the internal Teacher Working Group (KKG) forum.

On the contrary, there are three inhibiting factors that need attention: (1) a significant digital competency gap between senior and junior teachers, which has the potential to create inequities in the quality of student learning experience between classes; (2) limitations of technical infrastructure under certain conditions, such as unstable internet connection and limited electrical power capacity; and (3) management of the use of gadgets by students that are not fully optimal, including the potential for distraction and misuse of devices outside the learning context.

DISCUSSION

Principal Instructional Leadership: Between Theory and Reality

The findings of this study consistently support the theoretical proposition that instructional leadership of school principals is a key variable in determining the quality of learning (Hallinger, 2018; Hitt & Tucker, 2016). The principal at SD Islam Al-Azhar 25 not only carries out administrative functions, but really positions himself as a learning leader who is actively involved in the entire learning cycle from planning to evaluation.

What distinguishes leadership in this school from the conventional instructional model is its distributive and collaborative nature. The principal does not monopolize pedagogical decisions, but rather actively distributes leadership to competent teachers, creating what Spillane (2006) calls distributed instructional leadership. This approach has proven to be more

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effective in driving learning innovation because it leverages collective intelligence and reduces reliance on a single leader figure.

Furthermore, these findings also strengthen Stronge's (2018) argument that effective principals are those who are able to balance managerial responsibilities and instructional focus. At SD Islam Al-Azhar 25, the principal managed to establish a system that allowed administrative affairs to run efficiently without taking up attention from the instructional focus. This is achieved through structured delegation and the use of a digital-based management system that eases the administrative burden.

The Dynamics of Digital Learning Implementation: Beyond Just Technology Adoption

The findings of this study confirm the perspective of Bond et al. (2020) that the success of digital learning is not determined by the sophistication of the technology used, but by the quality of its pedagogical integration. At SD Islam Al-Azhar 25, the implementation of digital learning is not just the replacement of whiteboards with smartboards or textbooks with digital files, but the transformation of pedagogical approaches that place students as active agents in the construction of knowledge.

The use of Google Classroom, for example, not only serves as a repository of materials, but is designed as a digital learning space that allows for rapid formative feedback, productive asynchronous communication between teachers and students, and structured documentation of learning progress. This is in line with the principle of technology-enhanced learning which emphasizes that technology must expand and deepen learning capacity, not just streamline existing processes.

The integration of Islamic values in digital learning design is also an aspect that deserves to be underlined. This shows that the principal has a clear vision of the identity of Islamic education in the digital age not just adopting technology from the outside, but integrating it in a way that is coherent with the school's mission and institutional values. This approach is relevant to the concept of Islamic educational leadership which emphasizes that innovation in Islamic education must be rooted in the values of monotheism and aims to develop kamil people.

The Impact of Digital Learning on Learning Quality

The findings regarding the positive impact of digital learning on student engagement and motivation are in line with the conclusions of Schindler et al. (2017) who found that appropriately integrated technology can improve all dimensions of student engagement. However, the study also adds an important nuance: increased engagement does not automatically equate to a comprehensive improvement in the quality of learning.

Principals and teachers at these schools show a critical awareness that indicators of learning success cannot be reduced to easily measurable metrics such as attendance or test scores. Aspects such as depth of conceptual

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understanding, critical thinking skills, character development, and learning comfort are also of serious concern. This holistic evaluation approach reflects the internalization of the concept of meaningful learning (Darling-Hammond et al., 2020) that places meaningful learning experiences as the ultimate goal, not just short-term cognitive achievement.

Challenges related to the digital competency gap between teachers are a practical important finding. This gap has the potential to create inequities in students' learning experiences, where classes taught by teachers with high digital competence get a much richer learning experience than other classes. Principals need to ensure that competency development programs not only improve average competencies, but also systematically narrow the gap.

Implications for Islamic Education Management

The findings of this study have significant implications for the management of Islamic education in Indonesia. First, Islamic schools need to formulate a digital vision that is coherent with their Islamic identity and values, so that digital transformation does not erode, but strengthens institutional character. Second, the development of instructional leadership for school principals needs to be a priority in Islamic principal education and training programs, with a curriculum that explicitly integrates digital leadership competencies. Third, affirmative policies are needed to ensure that Islamic schools at various levels of financial ability have equitable access to technological infrastructure and capacity-building programs.

D. CONCLUSION

This research yielded four main conclusions that enriched the understanding of the nexus between instructional leadership and digital-based learning in the context of Islamic elementary schools.

First, the principal at SD Islam Al-Azhar 25 Semarang carries out a comprehensive and multidimensional instructional leadership role, including strategic planning based on annual work programs, implementation as a role model for the use of technology, academic and clinical supervision oriented towards improving teachers' digital competence, and continuous data-based evaluation. This leadership is distributive and collaborative, involving teachers as partners in the development of digital curriculum.

Second, the implementation of digital-based learning takes place systematically and is integrated into the curriculum, by utilizing a digital ecosystem that includes LMS platforms, interactive devices, and collaborative applications. A distinctive characteristic is the integration of Islamic values in digital content design, which reflects a coherent vision of Islamic education in the digital age.

Third, digital-based learning has been proven to have a positive impact on learning quality, especially in increasing students' behavioral, cognitive, and emotional engagement. However, these positive impacts are conditional on the quality of pedagogical design, teacher readiness, and consistent instructional leadership support.

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Fourth, the success of the implementation of digital learning is determined by the synergy between the principal's leadership, teacher capacity, and supporting infrastructure. The main inhibiting factor is the digital competency gap between teachers and the management of device use by students requires a systematic and long-term handling strategy.

This study confirms the hypothesis that the quality of instructional leadership of school principals is positively correlated with the success of the implementation of meaningful digital-based learning. The more optimal the role of the principal as an instructional leader in terms of planning, supervision, teacher development, and evaluation, the higher the quality of the digital learning ecosystem that has been built.

Suggestions

For School Principals: It is necessary to strengthen a digital data-based evaluation system to monitor the development of teacher competencies and their impact on student learning outcomes more precisely. Peer mentoring programs between highly competent senior teachers and junior teachers also need to be institutionalized to accelerate the equitable distribution of digital competencies.

For Teachers: Professional development must not stop at mastering technological tools, but must reach pedagogical abilities in integrating technology meaningfully, including the ability to design authentic digital-based assessments and differentiate instruction using learning data.

For Schools and Foundations: It is necessary to develop a comprehensive acceptable use policy that is clearly communicated to all school residents, including students and parents. Continuous investment in infrastructure maintenance and software updates is also a prerequisite for the sustainability of digital learning programs.

For Future Researchers: This research can be developed using a mixed methods design that combines in-depth qualitative data with quantitative measurements of the variables of teachers' digital competencies, learning quality, and student achievement. Expanding coverage to more than one school will also strengthen the generalizability of the findings.

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