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Implementation of Digital-Based Approaches in Early Childhood Education Supervision

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Abstract

9 In the context of early childhood education, education plays a crucial role in shaping a child's development. The COVID-19 pandemic has transformed the education landscape entirely, including early childhood education. School principals and early childhood educators have faced challenges providing effective supervision, guidance, and evaluation in digital-based learning environments. This research aims to analyze the implementation of digital-based approaches in early childhood education supervision in the DKI Jakarta region during the COVID-19 pandemic. The research method employed is a survey method with a mixed-method approach. The results of data analysis indicate that the implementation of digital-based early childhood education supervision achieved a certain percentage, with challenges such as the digital literacy of early childhood educators, infrastructure readiness, and effective online communication.

Keywords: COVID-19, Early Childhood Education Supervision, Digital-Based Approaches, DKI Jakarta

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Introduction

The world is grappling with the ongoing COVID-19 pandemic, the duration of which remains uncertain. It has been two years since the global community began navigating life amid the challenges posed by the COVID-19 virus. The consequences of this pandemic have significantly affected various sectors, with education being one of the most profoundly impacted areas. The central government responded to the crisis by issuing Circular Policy Number 4 of 2020, which outlined educational policies for the COVID-19 emergency period. Due to this directive, distance learning had to replace traditional in-person instruction, necessitating the adoption of numerous strategies. To maintain the continuity of education in these unheard-of times, schools were forced to adapt by utilizing a variety of digital platforms.

As a result of the shift to remote learning, parents now bear greater responsibility for supporting their children's at-home education. Parental involvement is crucial to achieving the curriculum's educational goals because it fosters a cooperative relationship between schools and parents that greatly aids in achieving these objectives. Previous research has shown that face-to-face instruction is more effective than online instruction, with an effectiveness rate of about 90.5% compared to online instruction's effectiveness

rate of about 70.6%. This difference is largely the result of parental support and involvement (Handayani & Utami, 2020).

Furthermore, access to adequate facilities and infrastructure is a key ³ factor in the success of online education, so the quality of learning is closely related to the living conditions of the students (Ramli et al., 2020). The way school principals manage supervision has changed as a result of the changes to Indonesia's educational landscape. Previously conducted mostly in person, supervision is now digitalized and based online. This adaptation is crucial to ensure that students receive proper guidance from teachers and the necessary support from parents, enabling them to meet predetermined educational objectives. Digital-based supervision has been successfully implemented in several schools, offering the flexibility of conducting supervisory activities anywhere and anytime, facilitating smooth interactions and discussions between principals and teachers, all integrated with technology (Habibi et al., 2020).

However, despite the advancements of the Fourth Industrial Revolution, the equitable and efficient utilization of this technology remains a challenge. Issues include limited facilities and infrastructure and a shortage of human resources proficient in technology. Support from local government bodies and relevant agencies are crucial to sustaining educational evaluations. Research has shown that supportive leadership significantly enhances subordinates' performance (Wahida et al., 2020).

Online learning is a new experience for teachers, and many face challenges in utilizing technology effectively (Gómez-Rey et al., 2016). These challenges include creating PowerPoint videos, converting materials to online formats, and managing files using tools such as Google Drive and Google Sheets. Hence, it is imperative to provide gradual assistance, training, and education to teachers, guiding them through these digital aspects. This type of supervision is an integral part of what principals can achieve through digital means (Beetham & Sharpe, 2019).

In light of the challenges outlined above, ¹³ this study aims to investigate the implementation of digital-based principal supervision in early childhood education settings within DKI Jakarta during the COVID-19 Pandemic.

In summary, while the perception of traditional classrooms as the sole venue for learning persists among the public, the COVID-19 pandemic has accelerated the education sector's entry into the digital age. This transition has necessitated the use of technology, such as mobile phones, laptops, and internet connectivity, for learning (Hertiavi, 2020; Sørensen & Levinsen, 2015). As we embrace the Fourth Industrial Revolution, technological advancements have significantly impacted educational institutions, particularly teachers and students. As educational policymakers, school principals are responsible for cultivating teachers' professionalism to enhance the quality of education. Even in an online learning environment, principals must continue to fulfill their obligations by providing guidance and supervision, albeit through digital means (Ganon-Shilon & Schechter, 2017; Watkins, 2022).

DKI Jakarta, as the capital of Indonesia and one of the regions most affected by COVID-⁷19, has also witnessed a shift to online learning. This research was conducted across five areas of DKI Jakarta: Central Jakarta, South Jakarta, East Jakarta, North Jakarta, and West Jakarta. The study was carried out by distributing questionnaires to schools implementing digital-based academic supervision in the early childhood education sector.

Research Methodology

The research methodology employed in this study is informed by mixed-method research, a methodological approach utilized when researchers aim to investigate questions related to both outcomes and processes. This approach integrates both quantitative and qualitative methods within a single study, as outlined by Sugiono (2013).

The study collected data from a diverse group of participants, comprising researchers, teachers, and principals, totaling 65 individuals. The research procedure involved three key phases: problem identification, data collection, and analysis of digital-based supervision (Arikunto, 2015).

Data collection techniques were executed online, utilizing Google Forms, and were directed towards both teachers and school principals. Data was gathered using a variety of techniques, including observations, interviews, and documentation.

The methodology for data analysis was based on Miles and Huberman's framework, which calls for data reduction, data visualization, and conclusion drawing. (Sugiono, 2013). With a focus on the dimensions of Academic Supervision and Teacher Competence, the results of statistical calculations using SPSS were combined with information gained from interviews and questionnaires. These parameters include:

Table 1. Variable Dimension Instruments

VARIABLES	DIMENSIONS
TEACHER COMPETENCE	PEDAGOGIC
	SOCIAL
	PERSONALITY
	PROFESSIONAL
ACADEMIC SUPERVISION	PLANNING
	SUPERVISION-IMPLEMENTATION
	DATA ANALYSIS
	FEEDBACK
	REPORTING

Table 1 presents the different variables and dimensions, along with the associated instruments used in the study.

Teacher Competence is divided into four dimensions:

- **Pedagogic:** This dimension assesses the teacher's teaching methods and strategies.
- **Social:** It evaluates the teacher's ability to interact and engage with students socially.
- **Personality:** This dimension focuses on the teacher's personality traits and characteristics.
- **Professional:** It examines the teacher's professional qualifications and competence.

Academic Supervision is also divided into five dimensions, which are part of the supervision process:

- **Planning:** This dimension evaluates the planning stage of supervision, where objectives and criteria are set.
- **Supervision-Implementation:** It assesses the actual execution of the supervision process.
- **Data Analysis:** This dimension involves analyzing the data collected during supervision.
- **Feedback:** It evaluates the feedback provided to teachers based on the supervision findings.
- **Reporting:** This dimension assesses the reporting stage, where the results of supervision are documented and communicated.

Result and Discussion

Academic supervision holds a crucial role in shaping ¹² quality of education, particularly within the context of early childhood education. The effectiveness of the learning process heavily relies on the presence of skilled and professional teachers (Cantor et al., 2021; Cousin, 2020; Ford et al., 2021).¹⁵ Nurturing professionalism among these educators is achievable through the effective implementation of academic supervision. In the realm of early childhood education, teachers take on central roles in the learning journey, and their level of professionalism significantly influences the achievement of educational objectives (Cheng et al., 2016; Jess et al., 2016; Yi & Wen, 2023).

This research is focused on the distribution of data related to the implementation of digital-based academic supervision in early childhood education settings across various regions of DKI Jakarta. The study involves a sample of 50 teachers and 15 principals from different areas within DKI Jakarta, including the eastern, western, southern, northern, and central regions.

The research analysis involves a comparative examination of conventional supervision methods against digital-based supervision in early childhood education.

³ Table 2. Comparison Table of Effectiveness of Academic Supervision

Teacher Competence	Face to Face	Online/Digital	Percentage
Pedagogic	86	78	8%
Social	90	74	16%
Personality	91	76	15%
Professional	84	74	10%
Number of Gaps	87.75%	75.5%	12.25%

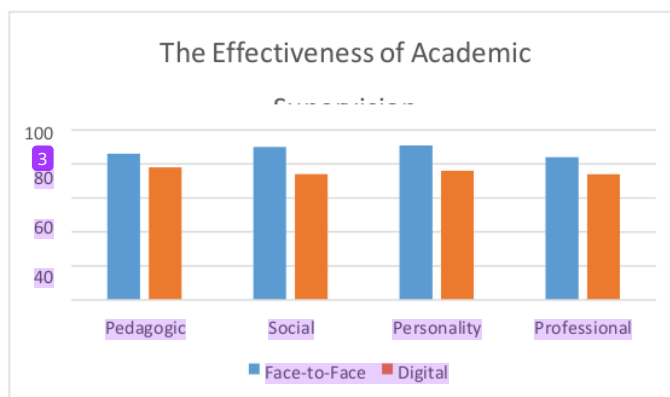


Figure 1. Graphics of Comparison Table of Effectiveness of Academic Supervision

The data analysis yields compelling findings. In terms of effectiveness, face-to-face supervision achieves an average score of 87.75%, while online supervision scores 75.5%. This data sheds light on the evaluation of teacher competencies, particularly when assessed through online-based academic supervision, indicating that these competencies can be categorized as 'sufficient'. Additionally, the analysis reveals an unexpected decline in the implementation of face-to-face supervision, with a noticeable gap of 12.25%. This discovery underscores the pressing imperative for school principals to demonstrate a strong

commitment to improving teacher competencies, particularly within the realm of online learning (Lie et al., 2020; Warren & Venzant Chambers, 2020).

Amidst the formidable challenges posed by the COVID-19 pandemic, this research unveils a resounding commitment among educators in the field of early childhood education. These educators display exceptional dedication and unwavering motivation, even in the midst of adversity. Their commitment is fortified by a robust spirit of collaboration among teachers, parents, and the broader community in the realm of online learning. Nevertheless, it is imperative to provide the requisite support, with a particular focus on ensuring the availability of adequate infrastructure. This entails not only guaranteeing the functionality of learning materials employed by teachers but also addressing the accessibility and functionality of facilities and infrastructure used by students.

The importance of academic supervision in molding the quality of education cannot be underestimated. It stands as a pivotal mechanism for nurturing teacher professionalism, a factor that profoundly affects the efficacy of the learning process. Within the domain of early childhood education, where teachers occupy a central and influential position, the role of academic supervision in shaping teacher competence is of paramount significance (Göker, 2020; Price, 2012).

In the pursuit of improved teacher competence, academic supervision encompasses four key areas of competence, namely:

- 1) Pedagogic Competence
- 2) Social Competence
- 3) Personality Competence
- 4) Professional Competence

The process of digital-based academic supervision adheres to a meticulously structured cycle overseen by school principals. The cyclic nature of this process is designed to facilitate ongoing enhancements in teacher competence, ultimately resulting in an elevated quality of early childhood education.

The implementation of academic supervision is best represented as a cyclical framework that can be effectively executed in a digital format. This cycle can be illustrated as follows:



Figure 2. Cycle of Digital-Based Supervision

The digital-based academic supervision process in early childhood education encompasses several key stages:

- 1) **Supervision Planning:** During the planning stage, principals within early childhood education settings collaborate with teachers to craft a well-structured academic supervision plan that ensures effectiveness and efficiency. This planning process

encompasses various critical components, including the scheduling of virtual face-to-face meetings facilitated through platforms such as Zoom Meeting. Within this stage, objectives and criteria for supervision are thoughtfully defined, focusing on establishing clear, logical, and measurable benchmarks for evaluating success.

- 2) **Supervision Implementation:** School principals carry out the academic supervision process following the meticulous planning phase. Within this stage, they systematically assess the competencies and performance of teachers in delivering online education to young children. This evaluation process involves the identification of both strengths and areas requiring improvement. The resulting findings serve as a valuable reference point for providing constructive feedback and formulating targeted solutions to enhance the educational experience.
- 3) **Data Analysis:** After the implementation phase, the data collected undergoes meticulous analysis. This pivotal stage holds critical significance in guiding decision-making processes and formulating tangible solutions to resolve issues identified during the academic supervision process. The outcomes of this thorough analysis serve as an informed basis for initiatives to enhance teacher competencies and, consequently, the overall effectiveness of the educational endeavor.
- 4) **Feedback and Follow-Up:** Subsequently, school principals engage in a feedback and follow-up stage of the academic supervision process. Principals offer comprehensive feedback during this phase, providing valuable comments and insightful observations. This feedback is thoughtfully communicated through online platforms such as Zoom meetings, facilitating efficient and meaningful exchanges. Furthermore, principals undertake a proactive follow-up process to ensure that the insights and findings from the academic supervision contribute effectively to teacher improvement. This follow-up also involves alignment with pertinent regulations to ensure compliance and consistency in educational practices.
- 5) **Reporting:** The concluding stage necessitates principals to compile comprehensive reports detailing the academic supervision process. These reports serve as a crucial mechanism for accountability, encompassing critical information. They comprise observation instruments, the outcomes of teacher observations, learning materials crafted by educators, and accompanying documentation, which may include screenshots of activities. The act of reporting meticulously maintains transparency and instills a structured approach in the execution of academic supervision, facilitating a well-documented record of the entire process.

14 Conclusion

The findings of this study reveal that the implementation of digital-based supervision has shown limited effectiveness in improving the competencies of early childhood educators. This limitation can be attributed to a lack of digital literacy among these educators, inadequate preparedness of early childhood institutions, and suboptimal digital communication channels between educators and school administrators.

In light of these findings, it is highly recommended that principals and administrators in early childhood education settings prioritize providing digital literacy training for educators. Additionally, there is a pressing need to ensure that these institutions possess the necessary facilities and infrastructure to support digital learning initiatives effectively.

Furthermore, principals and administrators should establish continuous communication channels and collaboration with early childhood educators, parents, and young learners. Such ongoing engagement can foster a more supportive learning environment.

In digital learning and monitoring within early childhood education, it is essential to adopt user-friendly, specialized applications accessible to educators and all relevant

stakeholders. By doing so, early childhood education can leverage the potential of digital tools to enhance the competencies of educators and provide a more enriching learning experience for young children.

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