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**VIRTUAL COACHING AS AN INNOVATIVE SUPERVISION MODEL:
IMPROVING TEACHER COMPETENCE THROUGH A TECHNOLOGICAL
APPROACH IN THE 5.0 ERA**

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Abstract

Technological advances in the Society 5.0 era demand innovation in the implementation of educational supervision to make it more adaptive and sustainable. This study aims to examine the effectiveness of Virtual Coaching as an innovative supervision model in improving teacher competency. The study used a qualitative approach with a case study method, chosen to gain an in-depth understanding of the implementation of Virtual Coaching in a real-world context. The research location was selected at MTs. Kanjeng Sepuh Sidayu Gresik because this madrasah has implemented technology-based supervision and demonstrated institutional readiness in developing teacher competency digitally. The study was conducted over six months, with data sources including the madrasah principal, teachers, and educational supervisors. Data collection techniques were carried out through in-depth interviews, participatory observation, and document analysis. Data validity was maintained through triangulation of sources and techniques, while data analysis was conducted using a qualitative descriptive analysis model that includes data reduction, data presentation, and drawing conclusions. The results showed that Virtual Coaching provided flexibility in supervision, improved teachers' pedagogical skills in utilizing learning technology, and accelerated the process of providing feedback from supervisors to teachers. Teachers also showed increased involvement in ongoing professional development. Obstacles identified included limited access to technology and differences in digital literacy levels among teachers. This study concludes that Virtual Coaching is an effective supervision model in supporting the improvement of teacher competency in the digital era, with recommendations for strengthening technological infrastructure and digital literacy training for teachers to optimize its implementation.

Keywords: Teacher competency, Educational supervision, Educational technology, Virtual Coaching.

Abstrak

Kemajuan teknologi di era Society 5.0 menuntut adanya inovasi dalam pelaksanaan supervisi pendidikan agar lebih adaptif dan berkelanjutan. Penelitian ini bertujuan untuk mengkaji efektivitas Virtual Coaching sebagai model supervisi inovatif dalam meningkatkan kompetensi guru. Penelitian menggunakan pendekatan kualitatif dengan metode studi kasus, yang dipilih untuk memperoleh pemahaman mendalam mengenai implementasi Virtual Coaching dalam konteks nyata. Lokasi penelitian ditetapkan di MTs. Kanjeng Sepuh Sidayu Gresik karena madrasah ini telah menerapkan supervisi berbasis teknologi dan menunjukkan kesiapan institusional dalam pengembangan kompetensi guru secara digital. Penelitian dilaksanakan selama enam bulan dengan sumber data meliputi kepala madrasah, guru, dan supervisor pendidikan. Teknik pengumpulan data dilakukan melalui wawancara mendalam, observasi partisipatif, serta analisis dokumen. Keabsahan data dijaga melalui triangulasi sumber dan teknik, sedangkan analisis data dilakukan dengan model analisis deskriptif kualitatif yang meliputi reduksi data, penyajian data, dan penarikan kesimpulan. Hasil penelitian menunjukkan bahwa Virtual Coaching memberikan fleksibilitas dalam supervisi, meningkatkan keterampilan pedagogik guru dalam pemanfaatan teknologi pembelajaran, serta mempercepat proses pemberian umpan balik dari supervisor kepada guru. Guru juga menunjukkan peningkatan keterlibatan dalam pengembangan profesional berkelanjutan. Kendala yang ditemukan meliputi keterbatasan akses teknologi dan perbedaan tingkat literasi digital antar guru. Penelitian ini menyimpulkan bahwa Virtual Coaching merupakan model supervisi yang efektif dalam mendukung peningkatan kompetensi guru di era digital, dengan rekomendasi penguatan infrastruktur teknologi dan pelatihan literasi digital bagi guru untuk optimalisasi implementasinya.

Kata Kunci: Kompetensi guru; Supervisi pendidikan; Teknologi pendidikan; Virtual Coaching.

A. Introduction

Technological developments in the Society 5.0 era have brought significant changes to various aspects of life, including the delivery of education. The integration of digital technology into the learning process requires teachers to possess pedagogical competencies that are adaptive to the dynamics of technology-based learning (Fitriani et al., 2021; Foster, 2022; Kim, 2021). In this context, educational supervision plays a strategic role as a means of developing teacher professionalism (Murtafi'ah & Al Rosid, 2024). However, supervision practices, still dominated by conventional approaches, are often less responsive to teachers' needs in the digital era, particularly in terms of time flexibility, continuity of mentoring, and speed of feedback (Adams, 2024; Bennett, 2023; Walker, 2022; Wilson, 2024).

Several previous studies have examined the use of technology in educational supervision and demonstrated positive results. Johnson and Smith (2020) found that technology-based supervision was more effective in improving teacher competency than conventional methods. Other studies by Lee et al. (2021) and García and Fernandez (2022) confirmed that virtual coaching can improve teacher engagement,

technology-based pedagogical skills, and the quality of interactions between supervisors and teachers. However, most of these studies have focused on general education contexts and have not explored the implementation of virtual coaching in depth in Islamic educational settings, particularly in junior high schools (Kim, 2021; Morgan, 2023; Mu'alina et al., 2024).

Based on these conditions, this study was conducted to examine in depth the implementation of Virtual Coaching as an innovative supervision model to improve teacher competency at MTs. Kanjeng Sepuh Sidayu Gresik. This madrasah was chosen because it has begun adopting technology-based supervision in response to the demands of digital learning and teacher professional development. This study aims to understand how Virtual Coaching is implemented in supervisory practice, how teachers respond to the model, and its role in supporting teacher competency improvement in the madrasah environment.

This research is important because there is still a gap between the concept of technology-based supervision developed in theoretical studies and its practical implementation in madrasahs. Although Virtual Coaching is seen as an innovative solution in educational supervision, empirical evidence regarding its effectiveness, challenges, and the context of its implementation in madrasahs is still limited (Simmons & Brown, 2023; Singh, 2021; Smith & Turner, 2022). Therefore, this research is expected to fill this gap by providing a contextual overview of the implementation of Virtual Coaching at MTs. Kanjeng Sepuh Sidayu Gresik and contributing to the development of an adaptive, contextual, and sustainable supervision model in the digital era.

B. Method

This research used a qualitative approach with a case study design to gain an in-depth understanding of the implementation of Virtual Coaching in educational supervision and its impact on improving teacher competency (Creswell & Creswell, 2017; García & Fernandez, 2022). The research was conducted over six months and took place at MTs. Kanjeng Sepuh Sidayu Gresik as the field study context. The research data sources consisted of primary and secondary data. Primary data were obtained from the madrasah principal, teachers, and educational supervisors directly involved in implementing technology-based supervision, while secondary data came from supervision documents, activity reports, and Virtual Coaching support tools used at the madrasah.

This research is a case study, focusing on the implementation of Virtual Coaching as an innovative supervision model at MTs. Kanjeng Sepuh Sidayu Gresik. Data collection techniques were carried out through in-depth interviews to explore the experiences and perceptions of research subjects, participant observation to directly observe the virtual supervision process, and document analysis related to the implementation and policies of technology-based supervision. Data validity was

maintained through source and technical triangulation techniques, namely by comparing the results of interviews, observations, and documentation to ensure the data obtained is more valid and accountable (Hall & Johnson, 2022; Nelson & Carter, 2021; Peterson, 2023).

The research process was conducted through several stages: exploration, implementation, and evaluation. In the exploration stage, researchers identified the initial conditions of supervision and the challenges faced by conventional supervision in madrasas. The implementation stage focused on the implementation of Virtual Coaching and mentoring teachers in utilizing technology to support supervision. Furthermore, the evaluation stage examined the effectiveness of Virtual Coaching by reviewing teacher competency improvements, involvement in professional development, and its impact on the learning process. The collected data were analyzed using qualitative descriptive analysis techniques through the stages of data reduction, data presentation, and conclusion drawing to gain a comprehensive understanding of the effectiveness of Virtual Coaching in educational supervision (Creswell & Creswell, 2017).

C. Results and Discussion

The research results show that the implementation of Virtual Coaching in educational supervision at MTs. Kanjeng Sepuh Sidayu Gresik has had a positive impact on improving teacher competency. Interviews revealed that teachers expressed greater confidence in integrating technology into the learning process after receiving assistance through Virtual Coaching. Teachers also experienced a change in supervision patterns, becoming more dialogical and sustainable compared to conventional supervision.

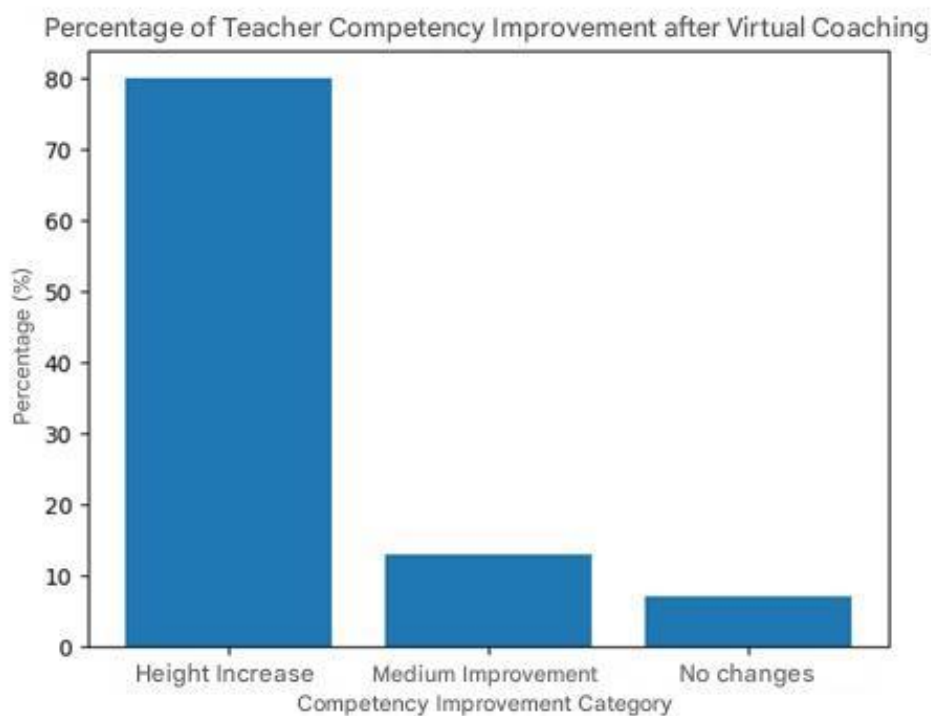
Observations show an increase in the use of learning technology, particularly the use of Learning Management Systems (LMS), interactive presentation media, and online learning platforms. A summary of findings related to changes in teacher competency after participating in Virtual Coaching is presented in **Table 1**, which shows that most teachers experienced improvements in technology-based pedagogy and digital classroom management.

Table 1. Improvement in Teacher Competence after Implementation of Virtual Coaching

Teacher Competency Aspects	Before Virtual Coaching	After Virtual Coaching
Utilization of LMS	Low	Tall
Use of digital learning media	Currently	Tall
Digital classroom management	Low	Tall
Involvement in professional development	Currently	Tall

As a supporting quantitative illustration, of the 15 teachers involved in the Virtual Coaching program, 12 reported improved skills in utilizing online learning platforms. Furthermore, an internal madrasah survey showed that 80% of teachers felt more competent in managing digital-based learning. A visualization of the level of teacher competency improvement is shown in **Figure 1**.

Figure 1. Percentage of Teacher Competency Improvement after Virtual Coaching



(Image description: The bar chart shows that 80% of teachers experienced an increase in digital competence, 13% experienced a moderate increase, and 7% experienced no significant change.)

Further analysis showed that virtual coaching contributed to improving technology-based pedagogical skills, particularly in interactive lesson planning and selecting digital media appropriate to students' needs. Furthermore, virtual coaching sessions provided a space for reflection and discussion between teachers and supervisors to address various learning challenges encountered in the classroom.

In terms of supervision effectiveness, virtual coaching is considered more flexible than conventional face-to-face supervision. Teachers are no longer dependent on formal supervision schedules that are limited by time and location. With virtual coaching, guidance can be delivered more responsively to the teacher's needs, thereby expediting the process of providing feedback and supervisory follow-up.

However, this study also found several challenges in implementing Virtual Coaching, namely limited internet access in some areas, variations in digital literacy levels among teachers, and the need for further training so that teachers can optimize the use of supervision technology independently.

The findings of this study align with those of Johnson and Smith (2020), who found that technology-based supervision is more effective in improving teacher competency than conventional supervision. Virtual coaching allows for a more personalized, sustainable, and responsive supervision process tailored to teachers' needs, as demonstrated in this study's findings.

The results of this study also support the findings of Lee et al. (2021), who revealed that virtual coaching increases teacher engagement in professional development. Accessibility and flexibility are key factors that enable teachers to tailor the mentoring process to their individual needs and learning contexts, thus positively impacting pedagogical competence.

From a learning quality perspective, this study's findings reinforce the findings of García and Fernandez (2022), who stated that technology-based mentoring encourages teachers to be more innovative in implementing digital learning strategies. Teachers who received supervision through Virtual Coaching demonstrated greater preparedness in integrating technology and improving the quality of classroom learning interactions.

However, unlike the findings of García and Fernandez (2022), who stated that Virtual Coaching can be widely implemented without significant obstacles, this study shows that successful implementation is highly dependent on the readiness of the technological infrastructure and teachers' digital competencies. Therefore, educational institutions with limited technological resources need support with infrastructure strengthening policies and programs to improve teachers' digital literacy.

Based on these findings, Virtual Coaching can be viewed as an innovative solution in educational supervision. However, its effectiveness is heavily influenced

by institutional policy support and technological readiness. With support from school management and improvements in teachers' digital competencies, Virtual Coaching has the potential to become a sustainable and adaptive supervision model in the digital age.

Furthermore, this study identified that supervisor leadership plays a key role in the success of Virtual Coaching. Supervisors who actively act as facilitators and mentors, rather than simply supervising, are able to have a more significant impact on improving teacher competency. This finding underscores the importance of strengthening supervisor capacity in implementing technology-based coaching approaches.

In closing, this study confirms that Virtual Coaching is an innovative and effective supervision model for improving teacher competency at MTs. Kanjeng Sepuh Sidayu Gresik. While still facing technical and digital literacy challenges, with the right implementation strategy and support from various parties, Virtual Coaching can be a strategic solution for developing educational supervision in the digital era.

D. Closing

This study found that Virtual Coaching is not simply a form of digitalized supervision, but rather an innovative supervision model capable of transforming the relationship between supervisors and teachers to be more collaborative, reflective, and sustainable. The novelty of this research lies in the empirical evidence that Virtual Coaching, when applied in a madrasah context, can accelerate the supervisory feedback process and encourage the internalization of technology-based pedagogical competencies in a more contextual manner. These findings suggest that the effectiveness of supervision is determined not only by the intensity of meetings, but also by the flexibility, sustainability, and quality of technology-mediated interactions.

In terms of contribution, this research provides theoretical and practical implications for the development of educational supervision. Theoretically, this research enriches the study of educational supervision by presenting Virtual Coaching as an adaptive supervision model relevant to the demands of Society 5.0, particularly in the context of Islamic education. Practically, the results of this study can serve as a reference for educational institutions and policymakers in integrating technology-based supervision as a strategy to improve teacher competency and continuous professional development. Virtual Coaching has the potential to be a more efficient and responsive alternative to supervision, addressing the time and space limitations of conventional supervision.

However, this study has limitations because it was conducted at a single educational institution, so the findings are contextual. Furthermore, it failed to examine the long-term impact of implementing Virtual Coaching or deeply explore teachers' psychological and motivational factors during virtual supervision. Therefore, future research is recommended to expand the scope of research locations,

employ a long-term approach, and assess teachers' infrastructure readiness and digital literacy to gain a more comprehensive understanding of the effectiveness of Virtual Coaching as an educational supervision model in the digital age.

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