Exploring the Potential of Digital Agenda Application to Support Principal Supervision in Monitoring Teacher Attendance

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Abstract - The purpose of this study is to explore the potential of digital agenda application in supporting the principal's supervision role in monitoring teacher attendance at SMAN 1 Pangalengan. The manual recording of teachers' learning agenda, the limited time and access of principals to real-time data on teachers' attendance in class indicate the need for a more effective and efficient system. Teacher absence can affect the smoothness of learning activities so that this application is designed to be able to support principals in responding to teacher attendance situations more responsively. Through a qualitative approach, data was obtained through field observations and in-depth interviews to identify specific needs related to monitoring teacher attendance. The results show that this application has the potential to support more responsive and effective principal supervision. This result was obtained because the digital application allows principals to monitor teacher attendance in real-time, thus speeding up responses to teacher absence or tardiness. The findings are expected to be the basis for further development in the application of digital applications to improve teacher performance at SMAN 1 Pangalengan.

Keywords-- principal supervision; digital agenda application; teacher attendance

I. INTRODUCTION

Principals play a major role in improving the quality of education in Indonesia. As a leader, the principal is tasked with ensuring the smooth running of the learning process through supervision activities in which there is a process of monitoring teacher attendance which is the most important factor in maintaining the quality of teaching in the classroom. This is in line with [1] that principals play an important role in learning supervision by integrating formal and informal approaches, utilizing direct and indirect observation, and ensuring teacher attendance, which is critical to maintaining and improving the quality of classroom teaching. Teacher attendance is critical to quality education, as it directly impacts academic performance, behavior and student engagement [2].

Monitoring teacher attendance is faced with various challenges. The manual recording of teacher attendance in class at SMAN 1 Pangalengan is one of the principal's challenges in conducting direct supervision of teacher attendance, so attendance reports are not only time-consuming, but also prone to errors and complicate real-time monitoring. Manual attendance systems often lead to inaccuracies in records, making it difficult to reliably track teacher attendance [3]. . Principals' limited time and mobility are also an obstacle in

monitoring teacher attendance in the classroom. This can cause delays in the principal's response or decision-making that can disrupt the smooth running of learning activities. Manually generated attendance reports are not easily accessible in real-time, hindering timely intervention by principals [4].

Along with the development of technology, the use of digital agenda applications in monitoring teacher attendance can be a solution. The digital agenda application allows principals to monitor teacher attendance in real-time, increase transparency, and speed up responses to teacher absences, which in turn increases administrative efficiency. Research [5] shows that technology-based surveillance systems, especially the use of AI systems, are able to automate attendance tracking, allowing principals to monitor teacher attendance in real-time, thus reducing administrative burden. Predictive analytics can also identify attendance patterns, enabling proactive measures to address issues before they escalate. In addition, research [6] revealed that online surveillance methods allow principals to observe classes remotely, ensuring that they can address attendance issues without being physically present. Digital supervision tools also facilitate continuous monitoring of teacher performance, allowing principals to provide timely feedback and support [7].

This study aims to explore the potential of digital agenda application in supporting the principal's supervision role in monitoring teacher attendance in real time at SMAN 1 Pangalengan. The research method used is a qualitative research method with data collection through field observations to directly see the attendance of existing teachers while in-depth interviews were conducted with principals, teachers and staff to dig deeper into the needs and expectations of digital agenda applications. Although there have been many studies on the utilization of technology in schools, research that specifically discusses the use of digital agenda applications to monitor teacher attendance in real time is still limited. In addition, this research also provides a more in-depth picture of the challenges and opportunities in implementing technology to help administrative efficiency in schools.

II. LITERATURE REVIEW

A. Principal Supervision

Based on the Regulation of the Minister of Education, Culture, Research and Technology No. 40 of 2021 concerning

the Assignment of Teachers as Principals Chapter Four Article 12 paragraph 1 states that the Principal's workload is to carry out basic managerial duties, entrepreneurial development, and supervision of teachers and education personnel. Principal supervision in education management refers to a systematic process in which school leaders support and improve the professional development of educators. This supervision or supervision is not only evaluative but aims to foster an environment conducive to improving the quality of teaching and student learning outcomes. Based on [8], principal supervision includes academic supervision that aims to improve teacher performance and education quality. Effective supervision involves planning, implementing, and following up on academic programs [9].

The principal's role as an academic supervisor is crucial in improving teacher performance, especially through monitoring teacher attendance. This responsibility covers several key aspects, including the planning, implementation and evaluation of academic supervision programs. In [10], it was stated that principals are expected to engage in comprehensive planning at the beginning of the academic year, involving all teachers and staff to align supervision objectives with educational needs. During the implementation of supervision, principals observe classroom conditions and teacher engagement, which includes monitoring attendance as an important factor in teacher accountability.

Teacher attendance significantly impacts the success of academic supervision, affecting teacher performance and student outcomes. Effective academic supervision, which includes monitoring teacher attendance, can improve teaching quality and student engagement. This is conveyed in research [11] which states that academic supervision has been shown to improve teacher performance, especially in lesson planning and implementation.

In addition, teacher attendance is directly correlated with student attendance; when teachers are present, students are more likely to attend class [12]. Teacher attendance significantly impacts the success of academic supervision, as consistent teacher attendance improves teaching quality and student engagement. Improved supervision and monitoring of teacher punctuality can lead to better student attendance, ultimately driving higher academic achievement in high school.

B. *Digital Technology in Education Management*

Digital technologies play an important role in improving the efficiency and effectiveness of education management by streamlining processes, improving communication and facilitating data-driven decision-making. The integration of these technologies not only addresses administrative challenges but also aligns educational institutions with modern demands for sustainability and quality improvement.

Streamlining administrative processes, such as digital solutions like schedule management systems, significantly reduces administrative workload, leading to a 30% decrease in time spent on management tasks [13]. Communication can also be improved with the help of digital technology thus

encouraging better stakeholder engagement, increasing overall satisfaction and operational efficiency [14]. Digital technologies also aid data-driven decision-making such as real-time data analysis, enabling educational leaders to make timely and effective decisions [15].

The application of technology in the supervision of teacher attendance through an automated attendance system is able to minimize the associated human errors and ensure precise attendance records [16][17]. Real-time monitoring also allows immediate identification of attendance discrepancies, such as unauthorized absences [18][19]. This real-time data allows principals to effectively monitor teacher attendance, facilitating timely intervention when necessary [19]. Automated alerts can inform administrators of attendance issues, enabling proactive management of classroom dynamics [17].

C. *Importance of Teacher Attendance*

Studies show that higher teacher presence correlates with improved student performance, while absence can disrupt learning continuity and negatively impact academic achievement. In research [20] states that teacher absence negatively impacts learning quality, causing students to face difficulties in completing homework, increased disobedience, lower academic grades and reduced enthusiasm for learning. Regular teacher presence is essential to foster a positive learning environment and improve student performance.

Accurate teacher attendance data is also crucial for effective school management, as it directly affects administrative efficiency, resource allocation and the overall quality of education. The integration of advanced technologies, such as biometric and computer vision systems, improves the accuracy of attendance records, thus supporting better decision-making in educational settings. Automated attendance systems reduce time spent on manual record-keeping, allowing educators to focus more on teaching. Systems that provide immediate notification of attendance status allow timely intervention for absences, which can affect student learning outcomes [19].

III. METHODOLOGY

This study uses a descriptive qualitative approach that aims to explore the potential of digital agenda application in supporting the principal's supervisory role in monitoring teacher attendance. The study population included 1 principal, 68 teachers, 21 school administrators, and 1,352 students at SMAN 1 Pangalengan. Participants were purposively selected, namely 1 principal, 1 vice principal for curriculum, and 3 teachers. Data collection techniques included in-depth interviews, field observations, and document analysis. Observations were conducted to understand the existing teacher attendance monitoring system, while interviews explored the needs and views of participants regarding the implementation of the digital agenda application. Data analysis was conducted using the triangulation analysis method to ensure the validity of the findings through comparison between interview data, observation results, and supporting documents.

IV. RESULT AND DISCUSSION

This chapter describes the results of exploring the potential of digital agenda applications to support principal supervision in monitoring teacher attendance at SMAN 1 Pangalengan. The data presented were obtained through in-depth interviews with the principal, vice principal for curriculum and three teachers. The findings include user needs, application potential and challenges that may be faced in its implementation.

Figure 1. School Environment

A. *User Needs Exploration*
  1) Principal

Based on the results of the interview, the principal said that academic supervision is carried out in collaboration with other teachers who are used as supervisors. The supervisor will conduct learning observations according to an agreed schedule and report the results to the principal. The results of this learning observation will be included in the performance management feature in the Merdeka Mengajar Platform application.
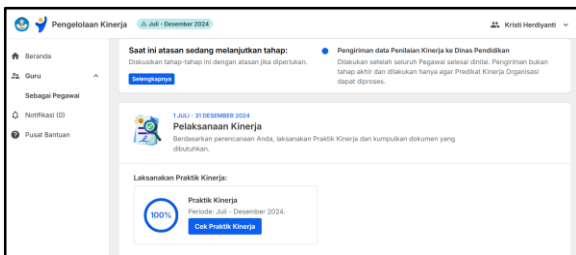

Figure 2. Performance Management on Merdeka Mengajar Platform

The monitoring of teacher attendance in class, which is part of the implementation of supervision, is also carried out through the KMOB application provided by the government. This KMOB application cannot monitor teacher attendance in class in real-time every class hour because this application only records teacher attendance when coming to and leaving school at a predetermined time.
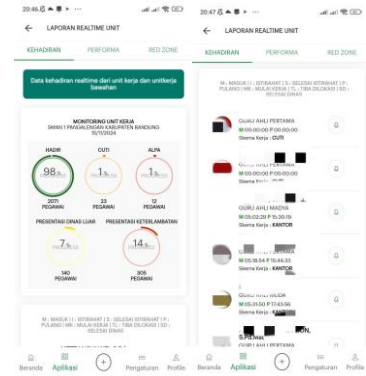

Figure 3. KMOB application

Principals need a real-time system to monitor teacher attendance in class during each class hour because it is not possible for principals to always go around the classroom to check teacher attendance.

SMAN 1 Pangalengan does have a learning agenda book that is kept in the classroom but the manual recording of teacher attendance in the agenda book requires a long recap time so that the principal cannot provide a faster response to teachers who are recorded as absent from class. The principal expressed the importance of easy and integrated data access to speed up the supervision and evaluation process.

Figure 4. Class Agenda Book

  2) Vice Principal

The vice principal for curriculum noted the importance of technology to reduce the administrative burden, especially in monitoring teacher attendance. Manual attendance in the classroom is too time-consuming and inaccurate, so with this digital agenda application, it is hoped that the process of monitoring teacher attendance can be more efficient.

In addition, there are reports of increased teacher absenteeism, especially during the Pancasila Student Profile Strengthening Project (P5) activities, which has an impact on the quality of learning. Therefore, this application is expected to improve the discipline of teachers.

  3) Teacher

Teachers emphasize the importance of transparency in

the classroom attendance recording system. Through the digital agenda application, they hope to ensure that their attendance data is securely recorded, accurate and not easily manipulated. They also want access to their own data to monitor their attendance records accordingly, so that any errors can be corrected.

B.   *Potential of Digital Agenda Apps*
1)   Desired features

The interview results show some features that are considered important, namely

a)   Real-time attendance reporting: Principals and staff can monitor teacher attendance directly online through digital devices such as laptops or mobile phones.
b)   Data Integration: All attendance data is integrated and can be accessed at any time.

2)   Anticipated Benefits

Users estimate several benefits from this application such as :

a)   Supervision efficiency through real-time data access.

Efficiency relates to time savings when principals and teams cannot always go around the classroom. When waiting for a recap from the agenda book, it also takes a long time so using this application will be very efficient to access teacher attendance data in real time.

b)   Increase transparency and accuracy in attendance recording. Teachers can view and validate their attendance data directly and minimize manual errors in recording attendance.
c)   Facilitate decision-making by school principals regarding follow-up supervision. If all data can be accessed directly through the application, the principal can take action more quickly if a teacher is absent.
d)   For teachers, the app can serve as a reminder to improve time discipline.

C.   *Challenge*
1)   *Technology Readiness*

Some teachers expressed concerns about the school's technology infrastructure and the geographical condition of the school where the internet network is sometimes unstable.

2)   *User Digital Literacy*

The readiness of users, especially senior teachers, also needs to be a concern. Some of the teachers need special training to operate the application so that the implementation runs smoothly.

D.   *Analysis and Synthesis of Findings*
    Based on the results of interviews and observations conducted, it was found that recording teacher attendance for

each class hour at SMAN 1 Pangalengan is still done manually through recording in the class agenda book, even this semester only a few classes have class agenda books. This makes it difficult for the principal and other management teams to monitor teacher attendance in real-time. In addition, in line with research [20], teacher absence has a negative impact on the quality of learning. Several times it was found that students were out of class or did not participate in learning due to teacher absence. Principals are also constrained by mobility so that decision-making to respond to teacher absence becomes less efficient due to information delays.

In addition, the vice principal also expressed difficulty in accessing integrated teacher attendance data. The team has to collect reports from each teacher recorded in the class agenda book, which is time-consuming and cannot provide a comprehensive overview in a short time. This indicates the need for a more efficient and responsive system to monitor teacher attendance quickly and accurately.

The design of a digital agenda application was developed as a solution to simplify recording and monitoring teacher attendance. This application is designed to allow principals and administrators to monitor teacher attendance in real-time. Each teacher is expected to record attendance through this application, which will be automatically updated and can be accessed by the principal or vice principal at any time. Attendance reports can also be accessed in tabular form which makes it easy to analyze teacher attendance within a certain period of time.
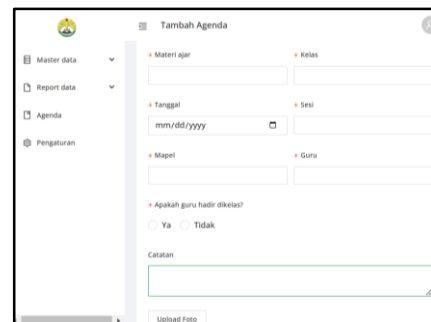
Figure 5. Design of Add Agenda Feature
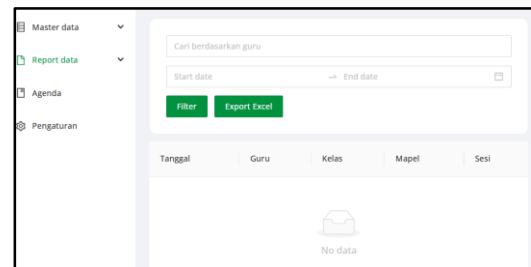
Figure 6. Report Feature Design

This application not only functions for recording teacher attendance but is also designed to support a more responsive supervision process. With quick and easily accessible information on teacher attendance, principals can take immediate action if needed, such as contacting absent teachers. The design of the app also ensures that all data is stored digitally, minimizing errors in manual recording and making it easier to access data in the future.

Overall, the design of this digital agenda application is expected to be a solution to improve efficiency in monitoring teacher attendance and supporting the implementation of academic supervision at SMAN 1 Pangalengan. The use of this application can also accelerate decision making by the principal, as well as increase accountability and transparency in the process of teacher attendance management.

V. CONCLUSION

The conclusion of this study shows that the digital agenda application has great potential to support the principal's supervision role in monitoring teacher attendance at SMAN 1 Pangalengan. The research findings reveal that the manual recording of teacher attendance makes it difficult for the principal and related parties to access real-time data. With this application, the principal can obtain teacher attendance information quickly and accurately, which allows for more responsive decision-making. The implementation of this digital agenda application can be a solution to improve the attendance management system in schools. However, the implementation of this application needs to be done by considering aspects of user training and further testing. In the future, this application is expected to contribute significantly to improving the performance and management of education at SMAN 1 Pangalengan.

REFERENCES

[1] Nahdah, Nasya, Sahirah, Asep, Suryana, Udan, Kusmawan, Diding, Nurdin. (2024). The Principal's Role in Implementing Learning Supervision to Improve Teacher Quality in the 21st Century. Journal of educational administration and management, 7(1):89-89. doi: 10.17977/um027v7i12024p89

[2] Sadia, Aslam, Aminah, Qayyum, M, Luqman, Muhammad, Usman, Zahid, Hassan, Syed, Kashan, Hader, Gilani, Muhammad, Shoaib, Naima, Nawaz. (2023). Examining The Impact of Teacher Absenteeism on Academic Performance Among Primary-Level Students in Faisalabad. Journal of education and social studies, doi: 10.52223/jess.2023.4307

[3] Pratham, Shrivastav, Aditya, Singh, Ayush, Sharma, Chirag, Gupta, Latha, Banda, Kala, Jeethender, Jain. (2024). A systematic review and research perspective on Attendance Management System. doi: 10.31219/osf.io/2ptky

[4] Aditya, Vinesh, A, K, Prasad, Shubha, Govind, S, Gowri, K, K, Shandry. (2024). 1. Attendance Management System Using Image andVoice Recognition. International journal of innovative science and research technology, doi: 10.38124/ijisrt/ijisrt24jul1745

[5] Olanike, Abiola, Ajuwon, Enitan, Shukurat, Animashaun, Njideka, Rita, Chiekezie. (2024). 1. Integrating AI and technology in educational administration: Improving efficiency and educational quality. Open access research journal of science and technology, doi: 10.53022/oarjst.2024.11.2.0102

[6] Mulyanti, D. (2023). Educational Supervision to Improve Teachers' Learning Quality and Performance in the New Normal Era. AL-ISHLAH: Journal of Education, 15(3), 3749-3755. doi:https://doi.org/10.35445/alishlah.v15i3.3780

[7] Astuti, R., Sutiah, S., Hidayatulloh, & Nisak, N. M. (2024). TRANSFORMATION OF EDUCATIONAL SUPERVISION WITH DIGITAL TECHNOLOGY: IMPLEMENTATION, OPPORTUNITIES AND CHALLENGES. Academic Journal Research, 2(1), 89-106. https://doi.org/10.61796/acjoure.v2i1.122

[8] Yolviansyah, F., & Hermanto, H. (2023). LITERATURE STUDY: ACADEMIC SUPERVISION BY THE PRINCIPAL TO IMPROVE THE QUALITY OF EDUCATORS. EduFisika: Journal of Physics Education, 8(1), 16-22. https://doi.org/10.59052/edufisika.v8i1.22615

[9] Sofia, C., Yusrizal, Y., & Khairuddin, K. (2022). Principal's academic supervision management in fostering teacher professional competence. AL-ISHLAH: Journal of Education, 14(4), 7371-7380. doi:https://doi.org/10.35445/alishlah.v14i4.2415

[10] Ntimuk, P., Achmad Supriyanto, Ali Imron, & Sarah M. Zehr (2023). The Role of the Supervisor in Implementing Supervision to Enhance the Quality of Student Learning Outcomes Through Continuous Improvement. Education Specialist, 1(2), 38-48. https://doi.org/10.59535/es.v1i2.118

[11] Sulaeman, Sulaeman., Junedi, Junedi. (2023). 1. Academic Supervision of PAI Teacher Performance in Educational Foundations Walisongo Magelang. Al Fikrah: Journal of Education Management, doi: 10.31958/jaf.v11i1.8712

[12] Paul, Kwame, Butakor., Benjamin, Osafo, Boatey. (2018). 3. Supervision of Teacher's Punctuality and Students' Attendance in Senior High Schools: Exploring the Views of Students. Journal of Education and Practice,

[13] Yang, L. Exploration of Digital Transformation Path of Education Management in Colleges and Universities in the Internet Era. Applied Mathematics and Nonlinear Sciences, 2024, Sciendo, vol. 9 no. 1, https://doi.org/10.2478/amns-2024-0802

[14] TOUFIK.N., CHHAWWARE. (2024). 1. Enhancing Educational Administration Efficiency: A Study on the Implementation of Digital Solutions for School Setup and Timetable Management. doi: 10.69758/gimrj2406i8v12p050

[15] З.к.M., Рухия. (2024). 3. The role of the use of information and communication technologies in the management of the educational process. Modern Humanities Success, doi: 10.58224/2618-7175-2024-6-129-134

[16] Mohit, Panwar. (2024). 1. Real Time Attendance Monitoring System using Face Recognition. Indian Scientific Journal Of Research In Engineering And Management, doi: 10.55041/ijsrem35443

[17] Kavitha, Arunachalam., A., Jayakumar. (2024). Contactless Attendance Management System Using Artificial Intelligence. doi: 10.1109/iconscept61884.2024.10627903

[18] Shoab, Ahmad, Khan, Fozia, Noor, Khan. (2024). 2. Real Time Attendance Monitoring System using Face Recognition. Indian Scientific Journal Of Research In

Engineering And Management, doi: 10.55041/ijsrem34800

[19] Muzayanah, R., Lestari, A. D., & Muslim, M. A. . (2024). IoT-Integrated Smart Attendance and Attention Monitoring System for Primary and Secondary School Classroom Management. Journal of Electronics Technology Exploration, 2(1), 21-25. https://doi.org/10.52465/joetex.v2i1.381

[20] Aslam, S., Qayyum, A., Luqman, M., Usman, M., Hassan, Z., Gilani, S. K. H., Shoaib, M., & Nawaz, N. (2023). Examining The Impact of Teacher Absenteeism on Academic Performance Among Primary-Level Students in Faisalabad. Journal of Education and Social Studies, 4(3), 479-485. https://doi.org/10.52223/jess.2023.4307