



Implementation of a QR Code-Based Attendance System for Congregational Prayer in Fostering a Culture of Discipline Among Students

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Abstract: This study aims to examine the implementation of a QR Code-based attendance system for congregational prayers in fostering a culture of discipline among students at a high school in West Kotawaringin Regency. The study employs a qualitative approach using a case study design. Data were collected through in-depth interviews with the principal, the vice principal for student affairs, Islamic Religious Education teachers, and students, and were supported by observations and documentation. The results of the study indicate that the implementation of the QR Code-based attendance system is capable of improving the effectiveness of student attendance tracking in a more accurate, transparent, and real-time manner. In addition to serving as an administrative tool, this system also contributes to enhancing student discipline, particularly in terms of punctuality, adherence to rules, and the development of a sense of responsibility. In the initial stages, student discipline was primarily influenced by digital monitoring, but it gradually evolved into a habit ingrained in daily life. The success of the program's implementation is supported by the commitment of school leadership, teacher involvement in monitoring, and periodic evaluation of attendance data. The use of digital technology in school religious activities serves as an innovative strategy to strengthen school management and foster students' disciplined character on an ongoing basis.

.Keyword : QR Code, digital attendance, discipline culture, congregational prayer, school management.

Abstrak: Penelitian ini bertujuan mengkaji implementasi presensi sholat berjamaah berbasis QR Code dalam membentuk budaya disiplin peserta didik pada salah satu SMA di Kabupaten Kotawaringin Barat. Penelitian menggunakan pendekatan kualitatif dengan desain studi kasus. Data dikumpulkan melalui wawancara mendalam dengan kepala sekolah, wakil kepala sekolah bidang kesiswaan, guru Pendidikan Agama Islam, dan siswa, serta didukung oleh hasil observasi dan dokumentasi. Hasil penelitian menunjukkan bahwa penerapan sistem presensi berbasis QR Code mampu meningkatkan efektivitas pencatatan kehadiran siswa secara lebih akurat, transparan, dan real-time. Selain berfungsi sebagai instrumen administrasi, sistem ini juga berkontribusi terhadap peningkatan kedisiplinan siswa, terutama dalam aspek ketepatan waktu, kepatuhan terhadap aturan, dan pembiasaan tanggung jawab. Pada tahap awal, perilaku disiplin siswa lebih dipengaruhi oleh pengawasan melalui sistem digital, namun secara bertahap berkembang menjadi kebiasaan yang tertanam dalam kehidupan sehari-hari. Keberhasilan implementasi program didukung oleh komitmen pimpinan sekolah, keterlibatan guru dalam pengawasan, serta evaluasi berkala terhadap data kehadiran. Pemanfaatan teknologi

digital pada kegiatan keagamaan sekolah menjadi strategi inovatif dalam memperkuat manajemen sekolah dan pembentukan karakter disiplin siswa secara berkelanjutan.

Kata kunci : QR Code, presensi digital, budaya disiplin, sholat berjamaah, manajemen sekolah

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Introduction

Discipline is an important element in the process of character development for high school students, both in general education and in education based on religious values (Khairani et al., 2021). In essence, discipline is reflected not only in compliance with established rules, but also in a person's ability to organize their activities, shoulder responsibilities, and remain consistent with moral and social expectations (Rahmadani et al., 2024). In the context of modern education, fostering a disciplined character is becoming increasingly important because it influences students' academic success and personality development. Therefore, schools need to implement systematic and sustainable strategies to instill a culture of discipline as part of the educational process (Naufal et al., 2025). One step that can be taken is to implement a QR code-based attendance system that is not only used for administrative purposes but also plays a role in fostering and strengthening student discipline. Thus, the relationship between the use of digital attendance technology and the development of a culture of discipline is an important issue that warrants further research.

In schools where the majority of students are Muslim, group prayer plays a strategic role as a vehicle for character building, particularly in fostering discipline among students (Majid & Muiz, 2025; Putri, 2020). This activity not only has a spiritual dimension but also embodies social values such as punctuality, orderliness, and adherence to shared rules. Consistently practicing these habits through religious activities has proven effective in fostering disciplined behavior that is internalized in students' daily lives (Bachtiar & Salim, 2025; Majid & Muiz, 2025). In addition, a school culture that integrates religious values into daily life can strengthen students' holistic character development, both morally and socially (Harfi et al., 2025; Yahya et al., 2026).

Meanwhile, advances in digital technology have driven various changes in educational administration, including in the mechanisms for tracking student attendance. The use of technologies such as QR codes for attendance tracking offers advantages in terms of accuracy, efficiency, and data transparency (Dewi et al., 2024). A number of studies show that digital attendance systems can address the shortcomings of manual record-keeping, such as the potential for data manipulation and delays in tabulation (Dewi et al., 2024; Fadilah et al., 2025; Hendrawan et al.,

2025). In addition, another study notes that digitizing attendance records also supports more systematic and accountable data-driven school management (Khaidarmansyah et al., 2025; Nishom et al., 2023). However, most of these studies still focus on administrative aspects and have not yet linked them to student character development.

Other studies have shown that regular religious activities, including praying in congregation, contribute to the development of students' discipline. This impact will be even more effective if there is support from teachers serving as role models and a conducive school environment (Bachtiar & Salim, 2025; Majid & Muiz, 2025; Rahmadani et al., 2024). In addition, a culture of discipline integrated with religious values has proven effective in shaping students' character, leading to more consistent behavior in their daily lives (Harfi et al., 2025). Other studies have also confirmed that structured religious activities can reinforce positive habits and foster students' sense of personal responsibility in the long term (Sari et al., 2025b). Nevertheless, these studies tend to focus on religious aspects and character building without integrating a technological approach as part of the activity management system. On the other hand, research on attendance technology places greater emphasis on system efficiency, and thus has not yet extensively examined its impact on student discipline in a contextual manner.

Based on the above discussion, there is a research gap regarding the integration of a QR code-based digital attendance system with the development of a culture of discipline among students through the religious practice of congregational prayer. Most previous studies have focused more on the effectiveness of technology in tracking attendance and improving student compliance with attendance rules, whereas research on how such technology interacts with religious practices in shaping an internalized culture of discipline remains relatively limited.

The novelty of this study lies in its analysis of the role of QR code-based attendance tracking for congregational prayer—not only as an administrative tool for tracking attendance, but also as a means of fostering a culture of discipline through the integration of digital technology, the cultivation of religious practices, teacher supervision, and school culture. This study seeks to explain the process by which students' discipline shifts from being driven by external control through a digital system to becoming internalized as a habit and a matter of personal awareness. On this basis, this study was conducted to gain a deeper understanding of the implementation of QR code-based attendance tracking for congregational prayer and its role in fostering a culture of discipline among students. Specifically, this study aims to answer the following questions: (1) how is the QR code-based attendance system implemented during congregational prayer at school, (2) how does it influence the development of a culture of discipline among students, and (3) what are the supporting factors and obstacles to its implementation.

Method

This study employs a qualitative approach using a case study design (Yin, 2018) to gain an in-depth understanding of the implementation of a QR code-based attendance system for congregational prayer in fostering a culture of discipline among students at a high school in West Kotawaringin Regency. This approach was chosen based on the research focus, which emphasizes an examination of the implementation process, the interactions that occur, and the meanings that emerge from the implementation of school policies in a real-world context (Dewi et al., 2024; Yin, 2018). The case study used is applicable because it allows researchers to explore the phenomenon holistically by considering the surrounding social, cultural, and managerial aspects of system implementation, identifying changes in student behavior, and examining the supporting factors and obstacles in fostering a culture of discipline in accordance with the research objectives.

The participants in this study included principals, vice principals in charge of student affairs, and Islamic religious education teachers at public high schools in West Kotawaringin, Central Kalimantan, Indonesia, who were selected using purposive sampling. (Andriani et al., 2025; Creswell, 2018). In addition, there were five student participants who were actively involved in the congregational prayers. The number of student participants was not determined based on statistical representation, but rather on the principle of information richness in qualitative research. The five students selected were those who were actively involved in congregational prayer and had firsthand experience with the implementation of the QR code-based attendance system. Data collection continued until the information obtained showed a relatively consistent pattern and no significant new themes emerged, at which point the data was deemed sufficient to address the research focus.

Data collection was conducted through interviews (Seidman, 2006), participatory observation (Creswell, 2018), and a review of school policies and attendance data (Dewi et al., 2024; Sari et al., 2025b). The interviews were conducted using a semi-structured approach (Seidman, 2006) to obtain comprehensive data on the implementation process, the perceptions of the school community, and the factors that support and hinder the development of a culture of discipline. All participants were interviewed once on the school premises. The interviews were conducted by tailoring the questions to each informant's role, duties, and responsibilities at the school. In addition, observations were conducted to directly observe the performance of congregational prayers and the use of the QR code system for attendance tracking. Participatory observation was conducted over a two-week period during the congregational Dhuhr and Asr prayers. The observation focused on the QR code scanning process, the punctuality of students' attendance, the regularity of attendance, and the interactions between teachers and

students during the activities. The results of the observations were recorded in field notes and used to triangulate the interview data. Additionally, data were obtained through a documentary study that included various documents related to school activities and the attendance system implemented at the school.

The data obtained from the interviews were analyzed using thematic analysis (Braun & Clarke, 2021) through several stages; specifically, data analysis is conducted in several stages. First, the interview transcripts were created using an AI speech recognition app and cross-checked against the original recordings to ensure data accuracy. Second, the researchers reviewed the entire dataset multiple times and coded information related to the study's focus, such as the effectiveness of the attendance system, punctuality, changes in student behavior, supporting factors, and implementation challenges. Third, codes with similar meanings were grouped into several categories. These categories were then analyzed to identify the main themes that illustrate the patterns and meanings emerging from the research data. Themes were identified by comparing the coding results from all data sources, namely interviews, observations, and documentation. A theme is identified when it appears repeatedly across various data sources and is directly relevant to the research objectives. This process is conducted to identify consistent patterns and meanings, thereby yielding key themes that form the basis for presenting the research findings.

To ensure the quality and reliability of the research data, triangulation techniques were applied (Patton, 2002) which was conducted using source triangulation and method triangulation. Source triangulation was conducted by cross-checking and comparing data obtained from various informants, including the school principal, the vice principal for student affairs, Islamic Religious Education teachers, and students. This step was intended to provide a more comprehensive picture and increase the reliability of the collected data. Methodological triangulation was conducted by comparing data obtained from interviews, observations, and documentation, thereby allowing for a more in-depth examination of the consistency of the information. In addition, this study also employed member checking – the process of verifying the findings with informants to ensure that the data and interpretations made by the researcher align with the conditions and experiences observed in the field.

Result And Discussion

Result

The research findings were obtained through a thematic analysis of data from interviews, observations, and documentation. The analysis process began with data coding, grouping codes with similar meanings into several categories, and then developing those categories into main themes. The themes presented in this section are the result of a synthesis of various data sources that have been verified through

triangulation of sources and methods. The research findings are presented in Table 1 below:

Table 1. Research Results

No	Main Theme	Indication of Findings	Triangulation Evidence	Informant Quote
1	Implementation of QR Code Attendance System	The QR Code attendance system replaces the manual system, making attendance recording more accurate and easier to monitor.	Interviews with the principal and vice principal for student affairs indicate increased effectiveness in attendance management. Observations show students scanning before entering the mosque. Attendance documentation shows data recorded automatically and in real time.	"Manual attendance is difficult to control; QR Code is more accurate." (Principal)
2	Improvement in Time Discipline	Students arrive earlier and better prepare themselves to participate in congregational prayer.	Teachers and students report improvements in punctuality. Observations show that most students arrive before the prayer begins. Attendance data indicates regularity in student participation.	"Since the QR Code system was implemented, students prepare more quickly to go to the mosque." (Islamic Education Teacher)
3	Transformation of Student Behavior	Discipline initially driven by system control evolves into a self-aware habit among students.	Student statements are supported by observations showing that students consistently arrive on time without needing reminders from teachers.	"At first it was because of the system, now it has become a habit." (Student-03)
4	Supporting Factors of Implementation	The success of the program is supported by leadership commitment, teacher supervision, and a supportive school culture.	Findings are consistently reflected in interviews with the principal, teachers, and school program documentation.	"The commitment of leadership and teachers is very important." (Principal & Vice Principal)
5	Implementation Challenges	Occasional internet network disruptions hinder the attendance process.	Student complaints about slow internet are consistent with observations showing queues at certain times.	"Sometimes the network is slow during scanning." (Student-04)
6	Contribution to Discipline Culture	The attendance system contributes to establishing a	Interviews, observations, and documentation show improved regularity in	"Our goal is to build disciplined habits." (Principal

		more orderly and sustainable culture of discipline.	congregational prayer and student compliance with rules.	& Islamic Education Teacher)
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Based on the findings in Table 1, the following is presented in Figure 1:

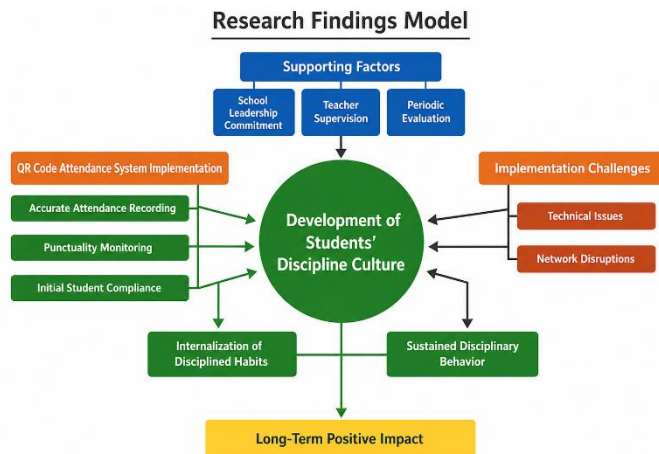


Figure 1: Research Findings Model

Implementation of a QR Code Attendance System as a Managerial Tool

The research findings indicate that the implementation of a QR code-based attendance system is part of the school's efforts to improve the effectiveness of student attendance management. Based on interview results, the principal stated that this system was developed in response to an evaluation of the shortcomings of the manual attendance system, which was deemed inaccurate and difficult to monitor.

"The implementation of this system stemmed from an evaluation of the manual attendance system, which had been ineffective and difficult for the school to monitor" (KS)

This was reinforced by the vice principal for student affairs, who noted that attendance data can now be monitored in real time and automatically compiled for evaluation purposes.

The observations showed that the attendance tracking device was placed at the mosque entrance, so students were required to scan their cards before joining the congregational prayer. This process proceeded in an orderly manner under the supervision of teachers, demonstrating the integration of digital systems and on-site oversight.

Improving Student Discipline in Terms of Punctuality

The research findings indicate changes in student behavior, particularly in terms of punctuality. Based on interviews with Islamic Religious Education teachers,

students tend to get ready more quickly when it is time for prayer because their attendance is recorded automatically.

"Since the introduction of QR codes, students have been able to get ready for the mosque more quickly" (GPAI)

This is consistent with observations showing that most students had already arrived at the mosque before the prayer began. The students also acknowledged that this system encourages them to be more punctual.

This study found that student discipline is not formed instantly, but rather through a gradual process. In the early stages, students' disciplinary behavior is more influenced by external control through a digital attendance system.

"At first, I participated because I was afraid of not showing up on the attendance system" (S-02)

However, over time, this behavior evolved into an internalized habit. Students began to develop the awareness to arrive on time without being forced to do so.

"Now I've gotten used to arriving early since this QR code attendance system was implemented" (S-03)

These findings indicate a shift from external discipline toward internal discipline.

Factors Supporting System Implementation

The success of implementing the QR code attendance system is influenced by several supporting factors. Interview results indicate that the commitment of school administrators, teacher involvement in monitoring, and regular evaluations are the main factors.

"Leadership commitment and teachers' exemplary behavior are crucial in efforts to address this issue" (KS)

In addition, a supportive school culture and coordination among school stakeholders help ensure the program's sustainability.

This study revealed the existence of technical challenges, particularly regarding the stability of the internet connection. Some students reported that the scanning process was sometimes disrupted.

"Sometimes the internet connection is slow, so the wait is a bit long" (S-04)

The results of the observation confirmed that queues formed at certain times due to connection issues. This indicates that the success of digital systems depends heavily on the readiness of the technological infrastructure.

Overall, the implementation of a QR code-based attendance system has contributed to fostering a culture of discipline within the school environment. This is evident in the increased orderliness, punctuality, and compliance among students in participating in congregational prayer activities.

“Our goal is not just to track attendance, but to foster positive disciplinary habits in the school environment” (KS)

The results of the observation show that activities are conducted in a more orderly and structured manner. Therefore, this system not only serves as a tool for attendance tracking but also helps foster a culture of discipline among students.

Discussion

The implementation of a QR code-based attendance system for congregational prayer, as identified in this study, underscores that the digitization of school management plays a crucial role in improving the effectiveness of student attendance management. The study's findings indicate that the use of QR code technology enhances the effectiveness of student attendance management by generating accurate, transparent, and real-time data. The results are consistent with previous research, which confirms that the use of digital attendance systems can overcome the limitations of manual record-keeping, particularly regarding data validity and efficiency in compiling attendance summaries (Khaidarmansyah et al., 2025). Furthermore, the digital system also allows schools to continuously track student attendance patterns, so that the resulting data can be used as a basis for formulating policies on student guidance and character development (Nishom et al., 2023). In this context, attendance data is no longer merely administrative in nature but has evolved into a strategic source of information for student management. Furthermore, the transparency provided by the digital system has the potential to enhance school accountability to various stakeholders, including teachers, students, and parents. Thus, digital attendance tracking serves not only as an administrative tool but also as an instrument for strengthening data-driven school management, which supports the creation of a more modern and systematic system of educational governance focused on the continuous improvement of the quality of educational services (Khaidarmansyah et al., 2025; Naufal et al., 2025).

The findings of this study also indicate that the use of the QR code system contributes to improved student discipline, particularly in terms of punctuality. This is evident from changes in student behavior, as they now prepare more quickly and arrive before the start of congregational prayer, whereas previously they tended to wait for instructions from the teacher or arrive closer to the start time. Based on the observations, most students were already in the mosque area several minutes before the iqamah was called, indicating a shift toward more proactive behavior. The results of this study reinforce the findings of previous studies showing that digital attendance systems can improve student discipline in terms of punctuality (Dewi et al., 2024). The existence of a system that automatically records time and cannot be manipulated encourages students to align their behavior with the standards set by the school (Hendrawan et al., 2025). In addition, the interview results also indicate that students are beginning to recognize the importance of arriving on time,

although at this early stage, their motivation is still influenced by external control factors. In this context, the use of the QR code system is not only intended to support the process of recording student attendance but also serves as a means of fostering disciplined behavior through consistent and sustained practice. In this context, student discipline does not arise spontaneously but develops through a gradual process. This process is influenced by the implementation of a technology-based monitoring system, the role of teachers in providing guidance and supervision, and the internalization of disciplinary values that takes place through daily activities in the school environment. Through the interplay of these various factors, a disciplined attitude gradually becomes an ingrained habit and an integral part of students' behavior.

From an educational management perspective, the implementation of this system also highlights the importance of integrating technology with human oversight to ensure the effectiveness of program implementation in schools (Fitria et al., 2025; Safitri et al., 2025). Although digital systems such as QR codes can record attendance data automatically, accurately, and in real time, research findings indicate that teacher involvement remains a key factor in maintaining student discipline in the classroom. The presence of teachers as supervisors is not merely to ensure technical smoothness, but also to set a good example, provide guidance, and reinforce the values of discipline among students. In practice, direct supervision by teachers can prevent potential misconduct, such as intentional tardiness or disorderly behavior in the attendance line. This is consistent with a study by Fitria et al. (2025), which emphasizes that the digitization of education must be supported by the active role of educators to ensure its optimal implementation. In this context, the role of teachers is not limited to performing administrative oversight functions but also includes the responsibility to serve as facilitators in fostering a culture of discipline that cultivates a sense of responsibility and self-awareness among students. Therefore, technology cannot be viewed as a substitute for the human role, but rather as a supportive tool that enhances managerial and pedagogical functions within the school environment (Aisyah & Fajrina, 2025). It is this balanced integration of digital systems and humanistic supervision that ultimately creates a learning environment that is orderly and well-controlled, while also supporting the ongoing internalization of the value of discipline (Fitria et al., 2025).

In addition, this study found a process of transformation from external discipline toward the internalization of values among students. In the early stages, students tended to follow the rules due to the QR code-based attendance system, which automatically recorded their attendance and arrival times. This indicates that student compliance is still influenced by external factors, such as supervision and the potential for administrative consequences. However, as time went on and the system was consistently implemented, this behavior evolved into a more stable habit

that was no longer entirely dependent on external control. The interview results showed that some students began to develop an awareness of the need to arrive on time without having to be reminded, indicating that the process of internalizing the value of discipline was taking place. This phenomenon indicates that consistent and well-planned habits contribute to the gradual development of students' discipline. One such habit that supports this process is the regular practice of congregational prayer within the school environment (Aulia et al., 2025). This explanation is also consistent with the research by Rizqi et al. (2026), which states that the integration of technology into attendance systems can encourage the development of responsible behavior among students. Furthermore, this process also demonstrates that technology not only serves as a monitoring tool but can also act as an initial stimulus that triggers behavioral change toward intrinsic awareness. In the context of character education, these findings confirm that the development of discipline does not occur instantly, but rather through the interaction between systems that regulate behavior, a supportive environment, and repeated experiences that shape positive habits (Riduan, 2023). Thus, the use of technology in school management can serve as an effective means of building students' character, provided it is supported by consistent implementation and the reinforcement of values by educators (Fadilah et al., 2025; Sari et al., 2025).

Although the QR code-based attendance system has been shown to contribute to improved student discipline, the findings of this study also indicate that the use of technology as a control mechanism has the potential to foster a reliance on external supervision. In the early stages of implementation, some students arrived on time because of digital record-keeping and school supervision, rather than solely out of personal responsibility. This situation suggests that the improvement in discipline does not yet fully reflect the internalization of values but is still influenced by the control mechanisms established by the system. Therefore, if supervision is reduced or the system is no longer used, there is a possibility that some students will revert to their previous behavior. These findings indicate that technology should be viewed as a tool to support character development, not as the primary goal of discipline training.

In the context of school culture, the results of this study also show that the digital attendance system plays a role in shaping a culture of collective discipline. This culture is reflected in orderly lines, punctuality, and a more orderly atmosphere during worship. These conditions indicate that discipline is not only a personal trait of students but also develops as a collective value that is embraced and practiced within the group environment. Previous research by Nishom et al. (2023) confirms that the use of QR code technology for attendance tracking can improve operational effectiveness and orderliness in educational organizations. Thus, a school culture

that integrates religious values into daily life can shape students' character in a holistic manner (Afifa, 2023).

Furthermore, the research findings reveal that the success of implementing a QR code-based attendance system is largely determined by the commitment of school leaders to ensuring the policy's continued implementation. The principal plays a crucial role not only as the policy-maker but also as the driving force that ensures every policy is effectively and consistently implemented in daily practice. In this context, the principal's leadership is not solely focused on administrative aspects but also reflects transformational leadership. Through such leadership, the principal is able to foster a shared vision, provide clear direction, and encourage active participation from the entire school community to support and ensure the success of the established programs. The research findings indicate that leadership commitment is reflected in the implementation of routine evaluations, strengthened coordination among teachers, and ongoing oversight of the attendance system. This is consistent with research showing that technology-based management requires strong leadership to guide organizational change (Naufal et al., 2025). Furthermore, consistent leadership also plays a role in shaping an organizational culture that is open to innovation, so that technology is not viewed as an additional burden, but as a necessity for improving the quality of educational services (Safitri et al., 2025). Without commitment and leadership by example from school administrators, the digital systems implemented risk becoming mere administrative formalities without having a significant impact on changes in student behavior. Therefore, the success of technology implementation in school management is largely determined by the extent to which school administrators are able to simultaneously integrate policy, supervision, and guidance into daily practices within the school environment (Aisyah & Fajrina, 2025; Safitri et al., 2025).

From a technical standpoint, this study also revealed challenges in implementing the QR code-based attendance system, particularly regarding internet connectivity, which is not yet fully optimal. This issue was evident during congregational prayer times, when some students experienced delays in the scanning process due to slow connections, resulting in lines forming at the attendance checkpoints. Nevertheless, the research findings indicate that these challenges do not significantly diminish the system's primary benefit of improving student discipline. In fact, in practice, students continue to strive to adjust to the existing system, so the process of adapting to the technology proceeds gradually. This is consistent with research showing that the implementation of a QR code system continues to provide significant benefits in terms of administrative efficiency despite technical limitations (Fathahillah et al., 2025). Furthermore, these findings suggest that the successful implementation of technology in an educational setting is not determined solely by the perfection of the system, but also by users' ability to

adapt and consistent managerial support (Aisyah & Fajrina, 2025). Therefore, technical challenges should be viewed as a natural part of the process of adapting to new technology, while also serving as a basis for schools to evaluate and continue improving their infrastructure and strengthening their systems so that future implementations can proceed more effectively and sustainably.

Furthermore, the findings of this study also indicate that digital attendance systems have a broad impact on student behavior beyond the context of worship. Some students stated that the habit of arriving on time for congregational prayer also influences their discipline in academic activities. This suggests a transfer of values from one activity to another. These findings are consistent with research conducted by Sari et al. (2025) which indicates that attendance and discipline are closely linked to student academic performance. Thus, fostering a culture of discipline in one context can have an impact on other aspects of students' lives.

From a character education perspective, the implementation of QR code-based attendance tracking can be understood as a form of integration between technology and religious values. Congregational prayer, as a spiritual activity, is combined with a digital system as a tool for monitoring and fostering good habits. This integration demonstrates that technology does not conflict with religious values but can, in fact, reinforce them. This aligns with the concept of educational digitization, which is not only focused on technical aspects but also on strengthening values and character. This is in line with the concept of educational digitization, which focuses not only on technical aspects but also on strengthening students' values and character (Fadilah et al., 2025).

Finally, this study confirms that the development of a technology-based culture of discipline is a complex and ongoing process. The QR Code system serves as an initial tool to facilitate monitoring and habit formation, but its sustainability depends heavily on consistent implementation, supervision, and the students' internalization of these values. Thus, this is consistent with the findings of Naufal et al. (2025), who state that the success of a program is not measured solely by the existence of a system, but by the extent to which that system is able to foster sustainable behavior and culture within the school environment.

Theoretically, this study shows that the QR Code attendance system functions not only as a tool for recording attendance but also as a habit-forming mechanism that reinforces the process of internalizing discipline. In conventional approaches to discipline, supervision is generally carried out directly by teachers through manual record-keeping and reprimands when violations occur. Meanwhile, in the QR Code system, monitoring is carried out more consistently through automatic, transparent, and real-time recording, thereby encouraging students to repeatedly adjust their behavior. This repetition of behavior, supported by the practice of praying in congregation and teacher supervision, gradually fosters a more stable sense of

discipline. Thus, this study expands our understanding that digital technology can serve as a mediating factor between external control and the internalization of disciplinary values in the context of religion-based education.

Conclusion

Based on the research findings and discussion, it can be concluded that the implementation of a QR code-based attendance system for congregational prayer at a high school in West Kotawaringin Regency has made a positive contribution to fostering a culture of discipline among students. This digital system not only improves the effectiveness of attendance management through more accurate, transparent, and real-time record-keeping, but also plays a role in fostering disciplined behavior among students, particularly in terms of punctuality, adherence to rules, and the development of a sense of responsibility. Research findings indicate that, in the early stages, student discipline tends to be influenced by external control through attendance systems, but gradually develops into a habit that is internalized in everyday behavior. The successful implementation of this program was supported by the commitment of school administrators, the active involvement of teachers in monitoring, and consistent evaluation of attendance data. Although there were technical challenges, such as internet connection stability, the system has generally proven effective in fostering a more orderly and conducive culture of discipline. Thus, the use of digital technology in school religious activities can serve as an innovative strategy for strengthening school management while fostering students' character development on an ongoing basis.

Although this study successfully provided an empirical understanding of the implementation of QR code-based attendance tracking in efforts to foster a culture of discipline among students, several limitations must still be acknowledged. *First*, the use of a case study approach that was conducted at only one research site. Consequently, the findings are contextual in nature and reflect the conditions at the schools studied. Therefore, the results of this study cannot yet be used as a basis for generalizing to other schools with different environmental characteristics, school cultures, and management systems. *Second*, the limited number of informants may not fully represent all student perspectives, particularly in capturing the variety of experiences and levels of discipline internalization. *Third*, this study focuses primarily on qualitative aspects and therefore does not quantitatively measure the extent of improvement in student discipline from a statistical perspective. In addition, the limited duration of the study meant that observations of the process of internalizing the value of discipline could not yet be conducted over the long term. Acknowledging this limitation is important to allow for a proportionate interpretation of the study's findings.

Based on the findings and limitations of this study, future research is expected to broaden the scope of the study by employing a more comprehensive

approach. The use of mixed methods (Creswell, 2018) to combine qualitative data with quantitative measurements regarding students' level of discipline, thereby providing a more objective and measurable picture. In addition, the study could be expanded to include several schools with different characteristics to obtain a broader comparison of the effectiveness of the digital attendance system. Future research could also examine other variables, such as the system's impact on learning motivation, academic achievement, or religious character development, in greater depth. In addition, the development of attendance tracking technology that is more adaptive and integrated with other school management systems is also an area worthy of further study. Thus, further research is expected to expand knowledge in the field of education and make a more significant contribution to strengthening educational management practices that utilize technology as a supporting tool.

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