

Digital Monitoring Synergy: Transforming Early Childhood Education Collaboration through a Parent-Integrated Academic System

Lailatus Syahria¹, Siti Mu'arafah², Fetty Ernawati³

^{1,2,3} Universitas Islam Negeri Raden Mas Said Surakarta

Abstract. Digital transformation in early childhood education (PAUD) institutions demands innovative public relations management that can strengthen communication and collaboration between schools and parents. A problem frequently identified in previous studies is the low intensity of communication, largely due to parents' limited time. This study aims to design the concept of Digital Monitoring Synergy as an innovation in early childhood education institutions public relations management by integrating parent communities into the academic information system (SIKAD). This study employs a qualitative approach using a conceptual modelling method based on literature review. Data were obtained from journal articles, books, and relevant scientific documents. The data were analysed through the stages of problem identification, extraction of user needs based on previous research findings, and synthesis of these needs into system feature designs. The results of the study produced a conceptual model of Digital Monitoring Synergy consisting of several key features: daily child reports, activity galleries, public relations announcements, parent response columns, parent communities, service partners, and security alarms.

Keywords: *early childhood education, student information system, parent community, digital monitoring*

Abstrak. Transformasi digital dalam lembaga Pendidikan Anak Usia Dini (PAUD) menuntut inovasi dalam manajemen hubungan masyarakat (humas) guna memperkuat komunikasi dan kolaborasi antara sekolah dan orang tua. Namun, berbagai penelitian menunjukkan bahwa intensitas komunikasi tersebut masih rendah, terutama akibat keterbatasan waktu yang dimiliki orang tua. Oleh karena itu, penelitian ini bertujuan untuk merancang konsep *Digital Monitoring Synergy* sebagai inovasi manajemen humas PAUD melalui integrasi komunitas orang tua dalam Sistem Informasi Akademik (SIKAD). Penelitian ini menggunakan pendekatan kualitatif dengan metode *conceptual modeling* berbasis studi literatur. Data diperoleh dari artikel jurnal, buku, dan dokumen ilmiah yang relevan. Data tersebut dianalisis melalui proses identifikasi permasalahan, ekstraksi kebutuhan pengguna berdasarkan temuan peneliti terdahulu, serta sintesis kebutuhan menjadi rancangan fitur sistem. Hasil penelitian menghasilkan model konseptual *Digital Monitoring Synergy* yang terdiri atas fitur laporan harian anak, galeri aktivitas, pengumuman humas, kolom respon orang tua, komunitas orang tua, mitra layanan, dan alarm keamanan. Model ini diharapkan menjadi acuan pengembangan



sistem informasi yang mendukung keterlibatan aktif orang tua dalam proses pendidikan anak usia dini.

Kata Kunci: *PAUD, SIAKAD, komunitas orang tua, digital monitoring*

Introduction

In today's era of digital transformation, early childhood education (*PAUD*) institutions are required to focus not only on learning aspects but also on strengthening public relations (PR) management as an effort to build a positive image and public trust (Hidayati et al., 2025). Early childhood education public relation management plays a strategic role in establishing harmonious partnerships between schools and parents as primary stakeholders (Wardani et al., 2024). However, in reality, PR management in many *PAUD* institutions still faces challenges in terms of communication effectiveness (Harditia & Sudadi, 2025). Many institutions do not have a well-documented system, so information on child development is often incidental. In fact, professional public relation (PR) management includes integrated planning, implementation, and evaluation to ensure the quality of educational services remains competitive (Irawan, M.A., 2024).

Furthermore, current public relations strategies must shift toward strengthening parent participation in systematic student monitoring to create continuity between school and home (Makhin, 2024). One relevant innovation is the integration of parent communities into digital communication systems, creating sustainable synergy between schools and families in supporting children's growth and development (Anggita et al., 2022). In this context, utilizing information technology through the Academic Information System (*SIAKAD*) can be an innovative tool to strengthen parental involvement while increasing the effectiveness of institutional communication (Ilham et al., 2024).

However, various data and research findings indicate that communication between teachers and parents is still suboptimal (Suharyat et al., 2023). Several studies have revealed that low communication intensity is due to time constraints among busy parents, who often do not have time to open or respond to information delivered (or conveyed) by teachers through conventional media like text messaging (or WhatsApp) groups (Torore et al., 2025). Equally significant, field research shows that information on children's development is often not fully conveyed, leaving parents with a limited understanding of their children's activities and conditions at school (Rahman et al., 2025; Asirah et al., 2023; Sari & Rahman, 2025). This indicates that the communication system

currently used is not yet able to answer the need for fast, effective, and integrated communication (Munir, H., & Novita, R., 2026).

Therefore, based on these conditions, there is a gap between the need for an integrated communication system and the reality of communication practices in early childhood education, which are still partial and less interactive (Lubis & Purwawijaya, 2025). Most previous research have focused on the use of simple communication media such as WhatsApp or contact books, but few have examined the integration of digital systems that comprehensively involve various parties, including parent communities and external partners. Furthermore, the use of *SIAKAD* in *PAUD* institutions is generally limited to administrative and academic functions and has not been developed as a strategic tool for public relations management (Usnur et al., 2026).

This problem is crucial to address immediately because ineffective communication can impact low parental involvement in children's education (Mulia, P. S., & Kurniati, E., 2023). If left unchecked, this has the potential to reduce the quality of educational services, hinder optimal monitoring of child development, and weaken the institution's image in the eyes of the public (Istikarani, M., & Aprianto, I., 2026). Furthermore, the lack of an integrated monitoring system can also pose risks to children's safety and security, particularly in emergency situations that require a rapid response from multiple parties (Novitasari et al., 2022).

To address this issue, innovation in early childhood education (*PAUD*) public relations management is needed through the development of a digital system based on Digital Monitoring Synergy, which integrates the parent community and various partners within the *SIAKAD*. This system is designed not only to monitor academic aspects and children's development (Nurma et al., 2025) but also as an integrated communication platform involving various parties such as firefighters, health workers, security forces, and the parent community. Through regular monitoring of children's daily activities and the inclusion of a security alarm, this system is expected to increase responsiveness, transparency, and parental involvement. Thus, *SIAKAD* is no longer merely an administrative tool but has evolved into a strategic medium for building synergy between schools, parents, and the community to create a safe, responsive, and high-quality educational environment (Sulaeman, 2021). Based on this urgency, this study aims to examine the transformation of public relations management through the integration of parent communities into academic information systems.

This research is limited to the development of a conceptual model for Digital Monitoring Synergy, compiled based on a synthesis of various previous research findings on early childhood education public relations management, parental involvement, digital communication in education, and the challenges of implementing early childhood education services. Therefore, the resulting system design is not based on direct observations or interviews with specific *PAUD* units. The system design is the result of a conceptualization of user needs extracted from empirical findings in the literature. The implementation and testing of the effectiveness of this model will serve as a follow-up study to verify its suitability in the context of early childhood education practices.

Methodology

The data in this study was collected through library research. The data sources used were secondary data in the form of journal articles, books, and other relevant documents published in the last ten years. The literature reviewed focused on the effectiveness of early childhood education (*PAUD*) public relations management, the implementation of the Academic Information System (*SIKAD*), and the urgency of parental involvement in the digital age.

The data analysis process was conducted qualitatively and descriptively through three stages. First, data reduction, which selected literature findings related to conventional communication barriers (such as the use of instant messaging groups) between *PAUD* institutions and parents. Second, data presentation, which mapped the functional requirements for a digital system capable of integrating parents and external service partners. Third, conclusions were drawn and design, where the results of the needs analysis were synthesized and then transformed into a conceptual design of the *Digital Monitoring Synergy* application features and its user interface. The validity of the conceptual design was checked through theoretical triangulation by comparing each designed feature with the concepts of educational public relations management, parental involvement, school-family communication, and the principles of early childhood protection and safety. For example, the *Parent Response Column* feature was analyzed based on the theory of two-way communication between schools and families, while the *Security Alarm* feature was juxtaposed with the concepts of risk management

and child safety in educational settings. This process was carried out to ensure that each feature has a relevant theoretical basis and supports the system development objectives.

Results and Discussion

The result of this research is a conceptual design for the SIAKAD system based on Digital Monitoring Synergy, a public relations management innovation for early childhood education (PAUD). This system is designed as an integrated digital platform connecting schools, parents, and external partners. The following are some of the main components of the system design.

Digital Monitoring Synergy Feature

The system design serves not only academic purposes such as attendance and progress reports, but also as a public relations tool to build relationships between the school and families and the community. The main features include:

Children's Daily Report Menu

This provides routine information on children's daily activities at school. Teachers input data related to attendance, learning activities, children's development, and any special notes parents need to know. Through this feature, parents can monitor their children's progress in real time without having to wait for monthly reports. This feature is important because many parents don't have enough time to discuss directly with teachers every day. Therefore, digital reports are a practical solution.

From a public relations management perspective, the daily report feature serves as a means of information transparency between the school and parents. This transparency is crucial for building trust, one of the primary goals of educational public relations. The availability of regular information on children's development allows parents to actively participate in the educational process, even if they have limited time to communicate directly with teachers.

Activity Gallery Menu

The activity gallery not only serves as visual documentation but also as an internal publication medium that strengthens the emotional bond between parents and the school. From an educational public relations perspective, activity documentation can

enhance positive perceptions of the institution's service quality while demonstrating the school's openness in communicating the learning process to the public.

This feature contains visual documentation in the form of photos and videos of children's activities during their time at school. Parents can directly observe their children's involvement in play, learning, religious practices, art activities, and other social activities. This feature strengthens parents' emotional connection, allowing them to stay connected even while they are working. Furthermore, documentation also enhances the institution's transparency in providing educational services.

Public Relations Announcements Menu

This menu is used to convey all official school information, such as activity agendas, parent-teacher meetings, parenting schedules, educational visit programs, partner activities, and institutional policies. Unlike instant messaging groups, which often create a clutter of information, this system presents announcements in a structured, documented, and easily accessible manner. Digital Monitoring Synergy strengthens the public relations function in transforming from simply disseminating information to managing structured, transparent, and sustainable communication. This transformation reflects a paradigm shift in public relations management, moving away from a relationship management approach that emphasizes information transparency, institutional accountability, and strengthening long-term relationships between schools and parents.

Parent Response Column

This feature provides a platform for two-way communication between teachers and parents. Parents can respond to their children's reports, ask questions, confirm attendance, and provide suggestions to the school. This feature is crucial because various previous studies have shown that communication between schools and parents tends to be one-way. The school acts as a provider of information, while parents are merely passive recipients. This situation has the potential to limit parental participation in decision-making and monitoring their children's development.

The parent response column addresses the issue of one-way communication by providing a space for open, documented, and ongoing dialogue. The interaction fostered is no longer focused on conveying information, but rather on the exchange of ideas, feedback, and collaborative problem-solving. This feature also represents the application of participatory communication principles in early childhood education

(PAUD) public relations management, which positions schools and families as the parties responsible for the success of children's education.

Parent Community Menu

This menu provides a collaborative space for parents within a class or within an institution. Parents can discuss, share parenting experiences, exchange information, and participate in school activities. Traditional public relations management practices typically build relationships between schools and parents through periodic formal meetings, limiting interactions to information sharing and administrative tasks. This feature transforms this paradigm into a community-based public relations approach that positions parents as part of the school's collaborative network. This feature fosters ongoing communication between schools, parents, and among parents.

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Service Partner Menu

This menu integrates PAUD institutions with external parties such as health workers, firefighters, child psychologists, neighborhood security, and other emergency services. This collaboration aims to expand the school's function as a child service center that focuses not only on academics but also on children's health, safety, and protection.

Security Alarm Feature

This feature is a key innovation in the system, enabling schools to quickly send emergency notifications to parents and relevant partners. For example, in the event of a child's sudden illness, a minor disaster, a health emergency, or a specific security situation, this feature increases parents' sense of security and strengthens trust in the institution.



Image 1. Digital Monitoring Synergy Feature

Parents Community Integration Process

Parent community integration is carried out through a systematic approach so that parent involvement is not merely formal. This involvement is expected to become an integral part of the ongoing education system. The integration process begins with the school administrator granting parents account access. Each parent receives a username and password directly linked to their child's data. The system is designed to

be web-based so it can be accessed via smartphone or laptop without the need to download additional applications. After logging in, parents verify their data to ensure information security. The system then automatically groups parents based on their classes, making community interactions more focused.

Teachers act as active communication facilitators by encouraging parent participation through announcements, discussion forums, and online parenting activities. In this way, the relationship between the school and the community is not merely administrative but develops into a sustainable collaborative relationship.



Image 2. Integration Process

User Interface

The system interface is designed to be simple, responsive, and user-friendly for easy access by parents from various backgrounds and occupations. The main dashboard displays a summary of children's activities, recent notifications, activity schedules, and quick access to all main menus. The daily report page is designed with a simple layout using easy-to-understand progress indicators. The activity gallery is designed in a visual grid for an attractive and comfortable display.

The parent community forum utilizes an interactive discussion system resembling simple social media platforms for user convenience. The security alarm page is designed with a quick alert system that allows for immediate response in the event of an emergency. This interface is designed to reduce the technology barrier that often contributes to low parental participation in the school's digital system.



Image 3. User Interface Feature

The conceptual design of *Digital Monitoring Synergy* proposed in this study addresses the challenges of public relations management in early childhood education institutions (PAUD) in the era of digital transformation. The results demonstrate that the use of the Academic Information System (SIKAD), which has previously focused solely on administrative matters, can be revitalized as a strategic instrument for building sustainable synergy between schools, families, and community partners.

The *Children's Daily Report* and *Activity Gallery* features directly address the issue of limited communication due to busy parents. While previously information on children's development was often incidental and fragmented, this system provides real-time transparency. This transparency psychologically and emotionally builds parental trust in the institution. Parental involvement is no longer limited to physical presence at school but is instead manifested through active digital monitoring and feedback in the *Response Column*. This aligns with the demands of modern public relations management, which prioritizes equal two-way communication between teachers and parents.

Unlike previous research that generally relied on simple communication platforms like *WhatsApp* groups or physical contact books, *Digital Monitoring Synergy* offers structured information management. While instant messaging groups often create clutter and make important information difficult to access, the *Public Relations Announcements* and *Parent Community* menus within this system neatly archive information. Furthermore, the app's community forum facilitates the exchange of parenting experiences among parents, transforming early childhood education institutions into more than just childcare or learning centers, but also family empowerment centers.

Another innovative finding from this research is the inclusion of *Service Partners* and *Security Alarm* menus. Public relations management in early childhood education institutions often neglects to engage external parties on an ongoing basis. By integrating the school's system with the police, fire department, and healthcare professionals, the school demonstrates a full commitment to children's safety and holistic well-being. The responsiveness in crisis management offered through the emergency notification feature is a unique selling point that significantly enhances the institution's brand image in the public eye.

Conceptually, this integration confirms that early childhood education management in the Society 5.0 era demands schools to be more open and collaborative. The *Synergy Digital Monitoring* system not only resolves daily miscommunication issues but also reinforces the role of parents as equal partners in comprehensively monitoring their children's growth and development.

Conclusion and Suggestions

This research shows that the *Digital Monitoring Synergy* innovation is a form of transformation of early childhood education (PAUD) public relations management that is relevant to educational necessities in the digital era. The Academic Information System (SIKAD), which previously only functioned as an administrative medium, can be developed into a strategic platform that supports communication, collaboration and child safety. The existence of features such as daily child reports, activity galleries, public relations announcements, parent response columns, student guardian communities, service partners, and security alarms show that teacher and parent communication can be built in a more systematic, documented and responsive manner. Integration of the parent community and service partners as an institution that is professional, adaptive, and oriented towards child protection and safety.

Therefore, PAUD institutions are advised to start developing an integrated digital communication system as part of a modern public relations management strategy. Apart from that, it also provides training to teachers and school administrators so that system use runs optimally. For future researchers, this research is still limited to the conceptual design stage so further research is needed at the implementation stage and testing the effectiveness of the system in the field so that the Digital Monitoring Synergy model can be developed in a more applicable, measurable and sustainable manner.

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