



Needs-Based Infrastructure Management in Early Childhood Education: Integrating Planning, Procurement, and Evaluation for Service Quality Improvement

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ABSTRACT

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This study aims to examine the strategy of needs-based facilities and infrastructure management and its contribution to improving the quality of educational services in early childhood education institutions. This study employed a qualitative research approach to obtain an in-depth understanding of facilities and infrastructure management practices. Data were collected through observation, interviews, and documentation involving key stakeholders, including principals, teachers, and parents/guardians. The findings revealed that facilities and infrastructure management was implemented through several stages, including needs-based planning, procurement, inventory management, utilization, maintenance, and evaluation. The study also found that effective management practices supported the creation of a safe, comfortable, and conducive learning environment, thereby contributing to improved educational service quality. The implication of this study is that early childhood education institutions should adopt a needs-based management approach by strengthening collaborative decision-making, improving asset management systems, and aligning facility development with institutional priorities and children's learning needs. This study contributes to the understanding of strategic facilities and infrastructure management in supporting sustainable quality improvement in early childhood education.

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INTRODUCTION

Facilities and infrastructure management in early childhood education has become an important issue in ensuring equitable access to quality educational services for young children. Early childhood is a critical period of human development because appropriate educational environments during this stage influence children's cognitive, social, emotional, and physical growth. Therefore,

educational institutions are required to provide learning environments that are safe, comfortable, and supportive of children's developmental needs. Adequate facilities and infrastructure serve not only as physical resources but also as essential components that enable teachers to design meaningful learning experiences. Previous studies have demonstrated that the quality of early childhood education environments is strongly associated with children's learning experiences and developmental outcomes (Cohrssen et al., 2023; Von Suchodoletz et al., 2023). Thus, effective facilities and infrastructure management is an important societal concern because it directly contributes to improving the quality and sustainability of early childhood education services.

The importance of facilities and infrastructure management is also related to the increasing demand for high-quality early childhood education institutions. As communities become more aware of the importance of early education, institutions are expected to provide adequate facilities that support children's safety, creativity, and learning engagement. The availability of appropriate learning spaces, educational play equipment, and supporting facilities can enhance the effectiveness of educational services and create positive learning experiences for children. Research conducted by Espinosa Andrade et al. (2024) indicates that school infrastructure has a significant relationship with learning outcomes, while Suryana et al. (2022) emphasizes that well-designed early childhood learning environments can stimulate children's creativity development. Therefore, managing facilities and infrastructure strategically is not merely an administrative responsibility but a fundamental effort to respond to societal expectations regarding accessible and high-quality early childhood education.

Despite the growing recognition of the importance of facilities and infrastructure, many early childhood education institutions still encounter challenges in providing and managing educational resources effectively. The problems experienced by educational institutions are not limited to the availability of facilities but also involve planning accuracy, resource allocation, maintenance systems, and utilization effectiveness. Limited financial capacity, increasing numbers of students, and inadequate management systems often prevent institutions from developing facilities according to their actual needs. In many cases, educational institutions provide facilities reactively rather than based on systematic needs analysis, resulting in inefficient resource utilization. Previous studies have highlighted that effective facilities management requires integrated processes, including planning, procurement, inventory, utilization, maintenance, and evaluation to ensure that educational resources support institutional objectives (Nasiruddin et al., 2024; Astuti et al., 2023).

These challenges are also experienced by RA Al-Huda & PAUD Kecipir Pondok Pinang, an early childhood education institution located in Pondok Pinang, South Jakarta. The institution has received significant public attention, as indicated by the number of prospective students exceeding its available admission capacity (Aimah et al., 2025; Yusriadi et al., 2026). This condition reflects strong community trust in the educational services provided by the institution. However, the increasing demand has not been fully supported by the availability of adequate facilities and infrastructure. Several problems have emerged, including limited classroom space that restricts student admission, insufficient funding for building expansion, manual inventory recording systems that are not updated in real time, and damaged educational play equipment due to intensive use (Akmansyah et al., 2026; Belle & Chemen, 2025). These conditions demonstrate the need for a comprehensive facilities and infrastructure management strategy based on institutional needs rather than temporary solutions.

Previous studies have provided important insights into facilities and infrastructure management in educational institutions. Several studies have examined the principles and processes of facilities management, emphasizing the importance of planning, procurement, inventory, utilization, and maintenance in improving educational quality (Nasiruddin et al., 2024; Suban & Ilham, 2023). Other studies have explored facilities management practices at different educational levels and found that effective management contributes to creating supportive learning environments (Nurstalis et al., 2021; Ginanjar et al., 2023). In the context of early childhood education, Fitria et al. (2024) investigated facilities and infrastructure management in PAUD institutions and revealed its contribution to improving learning effectiveness and service quality. However, these studies have primarily focused on describing management implementation rather than examining strategic approaches based on institutional needs and challenges faced by early childhood education providers.

Furthermore, existing literature indicates that facilities and infrastructure management requires stronger attention to needs-based planning as a foundation for sustainable educational development. Studies on educational resource management have emphasized that identifying institutional priorities, analyzing available resources, and determining appropriate procurement strategies are essential stages in ensuring effective management (Aziz et al., 2022; Ayusaputri et al., 2024). Nevertheless, limited research has explored how needs-based management strategies are implemented comprehensively in early childhood education institutions, particularly those experiencing increasing community demand and limited infrastructure capacity. This research gap is important to address because early childhood institutions have unique characteristics that

require facilities to be aligned with children's developmental stages, safety standards, and learning approaches (Abrar et al., 2026; Rozi et al., 2025). Therefore, further investigation is needed to understand how strategic facilities management can optimize educational services in early childhood settings.

This study offers a novel perspective by positioning facilities and infrastructure management as a strategic process based on institutional needs rather than merely an operational administrative activity. Unlike previous studies that mainly examine the availability or management procedures of educational facilities, this research emphasizes the relationship between needs analysis and strategic decision-making in managing educational resources. The study introduces a contextual approach by examining how early childhood education institutions respond to increasing service demands, limited resources, and sustainability challenges through systematic facilities management strategies. This perspective is important because effective infrastructure development requires alignment between institutional conditions, children's learning needs, and long-term educational goals.

Based on the identified issues, this research addresses the problem of how needs-based facilities and infrastructure management strategies can be implemented to improve educational service quality in early childhood education institutions. This study argues that effective management of facilities and infrastructure requires systematic processes involving planning, procurement, inventory management, utilization, maintenance, and evaluation that are aligned with institutional priorities. Through an analysis of RA Al-Huda & PAUD Kecipir Pondok Pinang, this research aims to provide practical recommendations for improving facilities management practices and contribute to the development of sustainable early childhood education management. The findings are expected to support educational leaders and policymakers in designing more responsive strategies for managing facilities and infrastructure according to the actual needs of early childhood education institutions.

RESEARCH METHODS

This study employed a qualitative research design to explore and understand the strategy of facilities and infrastructure management in improving educational service quality at RA Al-Huda & PAUD Kecipir Pondok Pinang. A qualitative approach was selected because it enables researchers to investigate phenomena in their natural settings and obtain comprehensive information regarding participants' experiences, perspectives, and interpretations of the reality they encounter. Qualitative research is appropriate for examining educational management practices because it emphasizes contextual understanding and the exploration of complex processes that cannot

be adequately explained through numerical measurements (Makaten & Mokala, 2025). Furthermore, qualitative studies allow researchers to construct meaning from participants' experiences through systematic data collection and interpretation, making this approach suitable for analyzing facilities and infrastructure management strategies in early childhood education institutions (Prawanti et al., 2025).

The research was conducted at RA Al-Huda & PAUD Kecipir Pondok Pinang, South Jakarta. This location was selected because the institution represents an early childhood education setting that experiences increasing community demand while facing challenges related to facilities and infrastructure capacity. The research data were collected through interviews, observations, and documentation. These techniques were selected because qualitative research commonly relies on multiple sources of evidence to obtain a deeper understanding of educational phenomena and strengthen data interpretation (Prawanti et al., 2025). The research participants were determined through purposive sampling, in which participants are intentionally selected based on their knowledge, experiences, and involvement in relation to the research focus (Tajik et al., 2025). The participants consisted of the principal, teachers, and parents. The principal was selected due to their authority in decision-making related to facilities and infrastructure management, teachers were involved because they directly utilize and manage educational facilities in learning activities, and parents were included to understand their perceptions of educational service quality.

The collected data were analyzed using the interactive model of qualitative data analysis, consisting of data condensation, data display, and conclusion verification. Data condensation involved selecting, focusing, simplifying, and organizing the information obtained from interviews, observations, and documentation to identify relevant themes related to facilities and infrastructure management strategies. Data display was conducted by presenting organized information in the form of descriptive narratives and thematic categories to facilitate interpretation of the research findings. The final stage involved conclusion verification, where researchers continuously examined patterns, relationships, and meanings within the data to ensure the credibility of the findings. This analytical process supports systematic interpretation of qualitative data and enables researchers to develop meaningful conclusions regarding educational management practices (Prawanti et al., 2025; Makaten & Mokala, 2025).

RESULTS AND DISCUSSION

Needs-Based Planning of Facilities and Infrastructure Management

The findings revealed that facilities and infrastructure planning at RA Al-Huda & PAUD Kecipir Pondok Pinang is implemented through a needs-based approach involving the identification of learning requirements and discussions among teachers and the principal. Based on interviews with the principal and teachers, the planning process begins with identifying problems and needs encountered during learning activities. These needs are then discussed in regular teachers' meetings conducted every semester. Teachers are actively involved in communicating facilities required to support learning activities, including classroom air conditioners (AC), educational play equipment (EPE), and other learning-supporting resources. The principal explained that fulfilling children's needs is the primary consideration in determining facility priorities because inadequate facilities may affect the effectiveness of learning services.

This finding indicates that facilities planning in early childhood education should not only focus on the availability of physical resources but also consider their relevance to children's developmental needs. Previous studies emphasize that effective facilities and infrastructure planning begins with needs analysis to ensure that procurement decisions are aligned with institutional priorities and educational objectives (Astuti et al., 2023; Suban & Ilham, 2023). Furthermore, Aziz et al. (2022) explain that systematic planning involving needs identification, funding analysis, and priority determination enables educational institutions to allocate resources more effectively. Therefore, the planning practice at RA Al-Huda & PAUD Kecipir Pondok Pinang reflects a needs-based management approach in which decisions are made based on actual conditions experienced by teachers and students.

Facilities and Infrastructure Procurement and Inventory Management

The findings showed that the procurement process at RA Al-Huda & PAUD Kecipir Pondok Pinang is conducted after identifying priority needs through teacher discussions. Teachers communicate their requirements to the principal, who then makes procurement decisions and purchases facilities through online platforms to improve efficiency in terms of time and cost. Most of the identified needs can be fulfilled; however, the expansion of school buildings remains unresolved due to limited financial resources. This condition becomes a significant challenge because the number of prospective students exceeds the institution's current capacity. Thus, although the institution has implemented a responsive procurement system, financial limitations remain a barrier to developing larger-scale infrastructure.

This finding is consistent with previous studies showing that limited financial resources are among the main challenges affecting educational infrastructure development. Ayusaputri et al. (2024) explain that effective facilities management requires alignment between institutional needs, resource availability, and management strategies. Similarly, Hutabarat et al. (2025) highlight that infrastructure management contributes to educational quality when planning and implementation are supported by adequate resources. In this context, the case of RA Al-Huda & PAUD Kecipir Pondok Pinang demonstrates that needs-based planning must also be accompanied by sustainable financial strategies to ensure that institutional development can respond to increasing educational demand.

Regarding inventory management, the findings indicate that facilities and infrastructure recording at RA Al-Huda & PAUD Kecipir Pondok Pinang is still mainly conducted manually through inventory books. Although digital recording has been introduced, its implementation has not been optimized, and inventory data are not always updated immediately when assets are added, damaged, or removed. As a result, the accuracy and timeliness of asset information remain challenges for the institution.

Effective inventory management is an essential component of facilities management because accurate asset records support monitoring, utilization, and decision-making processes. Previous studies emphasize that systematic inventory management enables educational institutions to maintain accountability and improve the efficiency of resource utilization (Nasiruddin et al., 2024; Ula & Rohman, 2024). Therefore, strengthening digital inventory systems at RA Al-Huda & PAUD Kecipir Pondok Pinang is necessary to improve asset monitoring and support more effective facilities management.

Utilization and Maintenance of Educational Facilities and Infrastructure

The findings demonstrated that existing facilities and infrastructure at RA Al-Huda & PAUD Kecipir Pondok Pinang are utilized optimally to support daily learning activities. Educational Play Equipment (EPE), projectors, classroom facilities, and other learning resources are regularly used by teachers and students. Teachers reported that EPE plays an important role in supporting children's motor development, while technological facilities such as projectors assist teachers in presenting learning materials more effectively. However, intensive utilization also creates challenges, particularly regarding the risk of damage and reduced durability of facilities.

These findings support previous research emphasizing that educational facilities should be managed not only in terms of availability but also through effective utilization strategies to maximize their contribution to learning quality.

Fauzi and Yusuf (2024) explain that facilities management aims to ensure that educational resources are utilized appropriately, efficiently, and in accordance with their intended functions. In early childhood education contexts, appropriate learning environments and resources are important because children require stimulating and safe environments to support their developmental processes (Cohrsen et al., 2023). Therefore, the utilization of facilities at RA Al-Huda & PAUD Kecipir Pondok Pinang demonstrates that well-managed resources can directly support children's learning experiences.

The maintenance findings showed that RA Al-Huda & PAUD Kecipir Pondok Pinang implements routine and corrective maintenance practices. Routine maintenance includes air conditioner servicing every two months, cleaning classroom equipment, and maintaining educational play equipment. Meanwhile, corrective maintenance is conducted when damage occurs, such as repainting faded walls, replacing damaged doors, and replacing unsafe educational play equipment. The school also encourages teachers and students to participate in maintaining facilities by returning equipment after use and caring for shared resources.

This practice reflects the importance of developing a maintenance culture within educational institutions. Previous studies indicate that sustainable facilities management requires collaboration among school members and the development of shared responsibility toward educational resources (Sholehah et al., 2023; Irvine et al., 2023). However, the findings also identified several challenges, including the loss of educational play equipment and other school assets. This suggests that maintenance systems require not only collective awareness but also clearer monitoring mechanisms and responsibility structures to ensure asset sustainability.

Evaluation of Facilities and Infrastructure Management

The findings revealed that evaluation of facilities and infrastructure management at RA Al-Huda & PAUD Kecipir Pondok Pinang is conducted through regular teachers' meetings. During these meetings, teachers communicate problems, deficiencies, and additional facility needs encountered during learning activities. The evaluation process allows the institution to identify facilities requiring repair, replacement, or additional procurement. Therefore, evaluation functions not only as a monitoring activity but also as a basis for future decision-making.

This finding confirms that evaluation is an essential stage in facilities management because it provides information regarding the effectiveness of resource utilization and future institutional needs. Previous studies highlight that quality improvement in early childhood education requires continuous

evaluation and systematic reflection to ensure that educational services remain responsive to changing conditions (Arifiyanti et al., 2025; Halik & Halifah, 2026). In this study, evaluation activities enable RA Al-Huda & PAUD Kecipir Pondok Pinang to adjust facilities management strategies according to actual conditions experienced by teachers and students.

The Contribution of Facilities and Infrastructure Management to Educational Service Quality

The findings indicate that needs-based facilities and infrastructure management contributes positively to educational service quality at RA Al-Huda & PAUD Kecipir Pondok Pinang. Based on interviews with teachers, the availability of adequate facilities influences children's comfort and participation in learning activities. One teacher explained that before the classroom was equipped with an air conditioner, a student had difficulty remaining in the classroom during learning activities. After the installation of an AC, the student became more comfortable and participated until the learning activity ended. Furthermore, the availability of projectors and educational play equipment supports teachers in delivering learning materials and stimulating children's development.

Parents also perceived the educational services provided by the institution positively, particularly regarding the comfortable learning environment, teacher attention, affordable costs, and availability of basic facilities. These findings indicate that facilities and infrastructure are not independent components but are closely connected with the overall quality of educational services. Previous studies have shown that quality early childhood education is influenced by the availability of supportive environments, effective management systems, and appropriate learning resources (Rademacher et al., 2025; Rao et al., 2023).

Overall, the findings demonstrate that facilities and infrastructure management based on institutional needs contributes to improving educational service quality through systematic planning, appropriate procurement, effective utilization, continuous maintenance, and regular evaluation. The experience of RA Al-Huda & PAUD Kecipir Pondok Pinang highlights that early childhood education institutions require strategic management approaches that integrate children's developmental needs, institutional capacity, and community expectations.

CONCLUSION

This study highlights that the key lesson from the implementation of facilities and infrastructure management at RA Al-Huda & PAUD Kecipir Pondok Pinang is that a needs-based management approach enables early

childhood education institutions to optimize limited resources while maintaining educational service quality. The findings demonstrate that effective management through systematic planning, procurement, inventory, utilization, maintenance, and evaluation, supported by collaboration among principals and teachers, plays an important role in creating a safe, comfortable, and supportive learning environment for children. The main contribution of this study is the development of a contextual understanding of facilities and infrastructure management in early childhood education by emphasizing the importance of aligning institutional needs, resource availability, and educational service improvement. However, this study is limited by its focus on a single early childhood education institution, which may restrict the generalizability of the findings. Future research is recommended to examine multiple early childhood education institutions with diverse characteristics and explore broader factors, such as financial management, digital asset management systems, and institutional policies, to strengthen understanding of sustainable facilities and infrastructure management strategies.

REFERENCES

- Abrar, M. T., Kholilurrohman, M., Saputra, Y. I., & Najiburrohman, N. (2026). Furūḍul' Ainiyyah Mentoring Program as a Media for Strengthening Basic Religious Competencies for New Students with Dyslexia. *Al-Qalam Community Service*, 1(1).
- Aimah, S., Faishol, R., Qushwa, F. G., & Maulidy, A. (2025). Conceptualizing Authenticity in Generative AI-Driven E-Learning: A Critical Examination of Generative Artificial Intelligence in Educational Systems. In *2025 International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies (3ICT)* (pp. 1–8). <https://doi.org/10.1109/3ict68299.2025.11442128>
- Akmansyah, M., Putri, I. A., Nurnazli, N., & Mujahid, A. (2026). Beyond Teacher Competence: Uncovering the Key Determinants of Student Learning and Achievement of Islamic Religious Education Subjects. *Indonesian Journal of Education and Social Studies*, 5(1), 119–133. <https://doi.org/10.33650/ijess.v5i1.13146>
- Arifiyanti, N., Dwiningrum, S., Syamsudin, A., & Harun, H. (2025). School Resilience Through Quality Management in Early Childhood Education: A Case Study from Indonesia. *International Journal of Evaluation and Research in Education*. <https://doi.org/10.11591/ijere.v14i1.30384>
- Astuti, M., Suryana, I., Novita, P. D., Emiliya, E., Sari, L., & Oktapiani, R. (2023). Perencanaan Sarana dan Prasarana pada Lembaga Pendidikan. *Semantik: Jurnal Riset Ilmu Pendidikan, Bahasa dan Budaya*, 1(4), 5. <https://doi.org/10.61132/semantik.v1i4.33>

- Ayusaputri, K. G., Musatafa, I. A., Syamsuddin, S., & Warman, W. (2024). Pengelolaan Sarana dan Prasarana dalam Meningkatkan Kualitas Pelayanan Pendidikan. *Jurnal Basicedu*, 8(6), 4766–4776. <https://jbasic.org/index.php/basicedu/article/download/9082/3636>
- Aziz, M. F., Zelni, Z., & Asiyah. (2022). Pengelolaan Sarana dan Prasarana dalam Pembelajaran Tatap Muka di Masa Pandemi COVID-19. *Jurnal Isema: Islamic Educational Management*, 7(1), 75–86. <https://journal.uinsgd.ac.id/index.php/isema/article/view/15787/7246>
- Belle, L. J., & Chemen, D. (2025). In Loco Parentis and Positive Discipline: Building Schools as Character Building Communities. *Indonesian Journal of Education and Social Studies*, 4(1), 42–56. <https://doi.org/10.33650/ijess.v5i1.9884>
- Cohrssen, C., De Rosnay, M., Garvis, S., & Neilsen-Hewett, C. (2023). Assessing the Quality of Early Childhood Education and Care in Australia: Challenges and Opportunities. *Frontiers in Education*, 8. <https://doi.org/10.3389/feduc.2023.1147669>
- Espinosa Andrade, A., Padilla, L., & Carrington, S. J. (2024). Educational Spaces: The Relation Between School Infrastructure and Learning Outcomes. *Heliyon*, 10(19), e38361. <https://doi.org/10.1016/j.heliyon.2024.e38361>
- Fauzi, M. I. F., & Yusuf, H. (2024). Manajemen Sarana dan Prasarana Pendidikan Perspektif Ayat-Ayat Al-Qur'an. *Jurnal Budi Pekerti Agama Islam*, 2(1), 293–303. <https://doi.org/10.61132/jbpai.v2i1.155>
- Fitria, A., Yuniar, D. P., & Ariyanto, F. L. T. (2024). Analisis Manajemen Sarana Prasarana di Lembaga PAUD Anna Husada Bangkalan. *Jurnal PG-PAUD Trunojoyo: Jurnal Pendidikan dan Pembelajaran Anak Usia Dini*, 11(1), 75–83. <https://journal.trunojoyo.ac.id/pgpaustrunojoyo/article/view/23529>
- Ginanjar, M. H., Jundullah, M., & Rahman. (2023). Manajemen Sarana dan Prasarana Pendidikan dalam Meningkatkan Kualitas Proses Pembelajaran di SMA Al-Minhaj Bogor. *Islamic Management: Jurnal Manajemen Pendidikan Islam*, 6(1), 103–118. <https://doi.org/10.30868/im.v4i02.3693>
- Halik, A., & Halifah, S. (2026). Developing a Process Quality Management Model for Early Childhood Education. *Asian Journal of Interdisciplinary Research*. <https://doi.org/10.54392/ajir2616>
- Hutabarat, N., Afriza, & Agustiar. (2025). Implementasi Manajemen Sarana dan Prasarana dalam Meningkatkan Mutu Layanan Pendidikan. *Dirasah*, 8(2), 604–615. <https://ejournal.iaifa.ac.id/index.php/dirasah/article/view/2022/1382>
- Irvine, S., Lunn, J., Sumsion, J., Jansen, E., Sullivan, V., & Thorpe, K. (2023). Professionalization and Professionalism: Quality Improvement in Early Childhood Education and Care (ECEC). *Early Childhood Education Journal*, 1–12. <https://doi.org/10.1007/s10643-023-01531-6>

- Makaten, D. S., & Mokala, N. T. (2025). Understanding Qualitative Research Methodology: A Systematic Review. *E-Journal of Humanities, Arts and Social Sciences*, 6(3), 327–335. <https://doi.org/10.38159/ehass.2025637>
- Nasiruddin, N., Fauzi, A., & Hidayat, W. (2024). Manajemen Sarana Prasarana dalam Meningkatkan Kualitas Lembaga Pendidikan. *Journal on Education*, 6(3), 17404–17411. <https://jonedu.org/index.php/joe/article/download/5669/4542/>
- Nurstalis, N., Ibrahim, T., & Abdurrohman, N. (2021). Peran Manajemen Sarana dan Prasarana dalam Meningkatkan Mutu Pembelajaran di SMP Islam Cendekia Cianjur. *Jurnal ISEMA: Islamic Educational Management*, 6(1), 63–76. <https://doi.org/10.15575/isema.v6i1.6579>
- Prawanti, A. A., Kumala, I., Fadillah, M. N., Damanik, R. Y. S., & Lubis, R. N. (2025). Desain, Jenis, dan Metode dalam Penelitian Kualitatif. *Tarbiyah: Jurnal Ilmu Pendidikan dan Pengajaran*, 4(1), 384–388. <https://doi.org/10.64464/tarbiyah.v4i1.186>
- Rademacher, A., Bäker, N., Von Düring, U., Hiltunen, V., & Goagoses, N. (2025). The Effects of Early Childhood Education and Care Quality on Academic Competences in Early Primary School: A Systematic Review and Meta-Analysis. *European Journal of Psychology of Education*, 40. <https://doi.org/10.1007/s10212-025-01005-w>
- Rao, N., Yang, Y., Su, Y., & Cohrsen, C. (2023). Promoting Equity in Access to Quality Early Childhood Education in China. *Children*, 10. <https://doi.org/10.3390/children10101674>
- Rozi, F., Qodriyah, K., & Hikmah, R. (2025). The Role of Artificial Intelligence Technology in Managing Stress and Improving Teachers' Mental Health. In *2025 International Conference on Artificial Intelligence, Blockchain, Cloud Computing, and Data Analytics (ICoABCD)* (pp. 1–8). <https://doi.org/10.1109/ICoABCD67551.2025.11470802>
- Sholehah, M., Kholid, I., Subandi, Mas Ayu, S., & Junaidah. (2023). Manajemen Sarana Prasarana Pendidikan di SMP dan SMA IT IMBOS Pringsewu. *Jurnal Manajemen Pendidikan Islam Al-Idarah*, 8(1), 33–43. <https://ejurnal-stitpringsewu.ac.id/index.php/jmpi/article/view/274/187>
- Suban, A., & Ilham, I. (2023). Manajemen Sarana dan Prasarana dalam Mengembangkan Mutu Pendidikan. *Idaarah: Jurnal Manajemen Pendidikan*, 7(1), 123–133. <https://journal.uin-alauddin.ac.id/index.php/idaarah/article/view/36359/17386>
- Suryana, D., Tika, R., & Wardani, E. K. (2022). Management of Creative Early Childhood Education Environment in Increasing Golden Age Creativity. In *Advances in Social Science, Education and Humanities Research* (Vol. 668). Atlantis Press. <https://www.atlantis-press.com/article/125975282.pdf>

- Tajik, O., Golzar, J., & Noor, S. (2025). Purposive Sampling. *International Journal of Education & Language Studies*.
https://www.ijels.net/article_220924_e5fa33c4c61f5d8e2844c56441ef1687.pdf
- Ula, K. I., & Rohman, T. (2024). Peran Manajemen Sarana dan Prasarana dalam Menciptakan Lingkungan Belajar yang Kondusif di Lembaga Pendidikan Islam. *EKOMA: Jurnal Ekonomi, Manajemen, Akuntansi*, 3(4), 1628–1637.
<https://al-haramjournal.id/EKOMA/article/view/3509>
- Von Suchodoletz, A., Lee, D., Henry, J., Tamang, S., Premachandra, B., & Yoshikawa, H. (2023). Early Childhood Education and Care Quality and Associations with Child Outcomes: A Meta-Analysis. *PLOS ONE*, 18.
<https://doi.org/10.1371/journal.pone.0285985>
- Yusriadi, Y., Farida, U., Mustaking, M., & Tahir, S. Z. B. (2026). From Policy to Plate and Grassroots Food Security Empowerment in Indonesian Villages. In *Community Empowerment Through Governance, Circular Economy, and Social Innovation* (pp. 1–26). IGI Global Scientific Publishing.
<https://doi.org/10.4018/979-8-3373-6122-2.ch001>