

Management of Facilities and Infrastructure for Quality Early Childhood Education Services

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Article submitted: 30 July 2026

Review process: 01 August 2026

Article accepted: 16 August 2026

Article published: 19 August 2026

Abstract

Facilities and infrastructure management plays a crucial role in the implementation of Early Childhood Education. A learning environment that is safe, comfortable, and conducive to children's growth and development can only be achieved if facilities and infrastructure are well managed. Through a literature review, this paper examines the concept of facilities and infrastructure management in relation to the quality of PAUD services, while also identifying the factors that influence its success. Data were obtained from national and international journal articles, books, and relevant regulations, then analyzed using content analysis with a qualitative approach. The results indicate that a systematic management process encompassing planning, procurement, utilization, maintenance, supervision, and evaluation will lead to improved quality of ECE services. It does not depend solely on the presence or absence of facilities, but also on the relevance of those facilities, how they are utilized, maintained, and sustained. Unlike previous studies, which generally distinguish between the availability of facilities and their management, this study combines both aspects. Additionally, this study identifies the factors that contribute to the successful management of facilities and infrastructure in early childhood education. Based on these findings, it can be concluded that the management of facilities and infrastructure must be positioned as a key, sustainable strategy in efforts to improve the quality of early childhood education services.

Keywords: child development; institutional management; learning environment; learning facilities; quality of education

Abstrak

Manajemen sarana dan prasarana memegang peranan penting dalam pelaksanaan Pendidikan Anak Usia Dini. Lingkungan belajar yang aman, nyaman, dan sesuai dengan tumbuh kembang anak hanya bisa terwujud jika sarana-prasarana dikelola dengan baik. Melalui studi kepustakaan, tulisan ini mengkaji konsep manajemen sarana-prasarana berhubungan dengan mutu layanan PAUD, sekaligus melihat faktor apa saja yang memengaruhi keberhasilannya. Data diperoleh dari artikel jurnal nasional dan internasional, buku, serta regulasi terkait, lalu dianalisis menggunakan teknik analisis isi dengan pendekatan kualitatif. Hasilnya menunjukkan bahwa proses pengelolaan yang dimulai dari perencanaan, pengadaan, pemanfaatan, pemeliharaan, pengawasan, sampai evaluasi jika dilakukan secara sistematis akan berdampak pada peningkatan kualitas layanan PAUD. Kebaruan dari kajian ini adalah upaya menyatukan fungsi manajemen sarana-prasarana dengan aspek kualitas layanan. Dengan begitu, kualitas layanan PAUD tidak hanya bergantung pada ada atau tidaknya fasilitas, tetapi juga relevan fasilitas tersebut, bagaimana cara memanfaatkannya, dirawat, dan dijaga keberlanjutannya. Berbeda dengan penelitian sebelumnya yang umumnya memisahkan antara ketersediaan fasilitas dan pengelolaannya, kajian ini menggabungkan keduanya. Selain itu, kajian ini juga memetakan faktor-faktor yang mendukung keberhasilan manajemen sarana-prasarana di PAUD. Berdasarkan temuan tersebut, dapat disimpulkan bahwa manajemen sarana dan prasarana diposisikan sebagai strategi utama yang berkelanjutan dalam upaya meningkatkan mutu layanan.

Kata kunci: lingkungan belajar; fasilitas pendidikan; kualitas layanan; pengelolaan lembaga; perkembangan anak

A. INTRODUCTION

Early Childhood Education (PAUD) is an important foundation in human resource development because in the age range of 0-6 years children experience rapid growth and development in physical, cognitive, language, social-emotional, moral, and creative aspects. This period is known as the golden age, which is a phase that has an important influence on the development of children in the next stage of life. (Asriyani et al., 2023) Therefore, the implementation of PAUD services needs to provide a safe, comfortable, inclusive, healthy, and appropriate learning environment in accordance with the characteristics of child development. The fulfillment of these conditions is not only related to the quality of educators and the learning process, but also to the availability and management of facilities and infrastructure that support children's learning needs. The Government of Indonesia through Government Regulation Number 57 of 2021 concerning National Education Standards and Regulation of the Minister of Education, Culture, Research, and Technology Number 22 of 2023 concerning Standards for Facilities and Infrastructure in Early Childhood Education, Basic Education, and Secondary Education places facilities and infrastructure as an important part of the implementation of quality education. (Mulyana, 2023)

Improving the quality of education is one of the priorities in the implementation of the national education system. The quality of education is not only determined by the quality of educators and the learning process, but also influenced by the effectiveness of the management of various educational resources, including facilities and infrastructure. From the perspective of education management, facilities and infrastructure function as a support for the creation of a safe, comfortable, and conducive learning environment so that the learning process can take place effectively. Therefore, the management of facilities and infrastructure should not be seen as a mere administrative activity, but as an integral part of the strategy to improve the quality of education services in a sustainable manner. (My et al., 2022) Thus, the success of an educational institution in providing facilities needs to be seen not only from the number of facilities available, but also from the suitability, utilization, maintenance, and sustainability of its management.

Facilities and infrastructure management includes a series of activities ranging from needs planning, procurement, inventory, utilization, maintenance, supervision, to evaluation and disposal of educational assets. Systematic management allows facilities to be used according to functions and needs so that they can support the effectiveness of learning while increasing the efficiency of education delivery. On the other hand, weak management can cause facilities not to be used optimally, suffer damage faster, or not be in accordance with the needs of students.(Sujanto et al., 2023). It shows that the success of the management of facilities and infrastructure is related to the managerial ability of the leaders of the education unit, the quality of planning, the availability of financing, and the involvement of institutional residents in the utilization and maintenance of facilities. The findings show that the quality of facilities and infrastructure is not only determined by physical aspects, but also by the quality of their management systems.

In the context of Early Childhood Education, the existence of facilities and infrastructure has a more complex role than other levels of education. The learning environment in PAUD must be able to support children's learning characteristics centered on play, exploration, social interaction, and the holistic development of various aspects of child development. (Fatima & Angkur, 2022) , PAUD facilities need to pay attention to aspects of safety, comfort, health, accessibility, stimulation, and suitability of learning tools and environments with the child's developmental stage. Showing that the management of facilities that are in accordance with learning needs can support the creation of a conducive learning environment. Thus, in early childhood services, facilities and infrastructure not only function as learning support facilities, but also become part of the pedagogical environment that directly affects the child's learning experience.

The urgency of managing PAUD facilities and infrastructure is increasingly evident from the scale of the implementation of PAUD services and the need to fulfill educational facilities nationally. Early Childhood Education Data (Paudpedia.Kemendikdasmen, 2025) which is sourced from Dapodik Even Semester 2025/2026 recorded as many as 206,993 PAUD education units with 6,230,051 students and 509,359 educators in Indonesia. (Sitanggang & Pratiwi, 2025) The large number of educational units shows that the management of facilities and infrastructure is a problem that has a wide scope in the

implementation of PAUD services. In addition, the Data and Information Technology Center of the Ministry of Primary and Secondary Education published the 2024 Early Childhood Education (PAUD) Sanitation Profile which photographs the condition of water sources, toilets, and handwashing facilities in PAUD units in Indonesia and 38 provinces (Sitanggang, Desmawan Anselmus, 2025) The publication of the profile shows that the fulfillment of basic facilities, including sanitation aspects, is still an important part of mapping and Improving the quality of the PAUD service environment. Thus, the issue of PAUD facilities and infrastructure is not only related to the existence of facilities, but also includes the feasibility, utilization, maintenance, and management of them in order to be able to support a safe, healthy, comfortable, and in accordance with the needs of child development.

A number of studies have shown a relationship between the management of facilities and infrastructure and the quality of education. (Makarau et al., 2023), for e.g, found that the management of facilities and infrastructure had a positive and significant effect on the quality of education with a contribution of 79.5% to the institutions studied. The findings show the importance of facility management in supporting the quality of education. However, the research focuses on the relationship between the management of facilities and infrastructure and the quality of education in the context of certain institutions. Meanwhile, the research (Sujanto et al., 2023) emphasizes more on process aspects and managerial factors in facility management, while (Fatima & Angkur, 2022) highlights the importance of a learning environment that is in accordance with the characteristics of early childhood. Thus, previous research provides complementary perspectives, but still tends to discuss aspects of management, learning environment, or quality of education partially.

This difference in focus shows that there is a research gap that needs to be studied further. Previous studies have used more field approaches in specific educational units and described the practice of managing facilities and infrastructure in the context of each institution. This approach is important for understanding empirical practice, but it does not fully provide a cross-research picture of how the overall management function of facilities and infrastructure relates to the quality of early childhood education services. In addition, success factors such as management competence, financing, suitability of facilities with

children's needs, institutional citizen participation, utilization, and maintenance have not always been placed in one synthesis framework. (Ayusaputri & Musatafa, 2024) shows the importance of facility management in supporting the implementation of education, but studies that specifically synthesize the management function of facilities and infrastructure with the quality of PAUD services still need strengthening. This gap is the position of this research.

Different from previous research which generally focused on the implementation of management in certain institutions, this study uses a literature study to compare and synthesize various research findings regarding the management of facilities and infrastructure in the context of early childhood education. The synthesis is directed not only to identify the form of management carried out, but also to find patterns of relationships between planning, procurement, utilization, maintenance, supervision, and evaluation with the quality of educational services. In addition, this study maps the factors that support or hinder the success of management so that a more comprehensive understanding of the position of facilities and infrastructure can be obtained as part of the strategy to improve the quality of PAUD services. With this approach, this study does not simply repeat the results of previous research, but integrates the findings into a more complete conceptual understanding.

Based on the research gap, this research is directed to answer the following questions: (1) how does the management of facilities and infrastructure contribute to improving the quality of PAUD services based on the results of previous research? and (2) what factors affect the success of facilities and infrastructure management in supporting the quality of PAUD services? These questions are the basis in the process of identifying, selecting, analyzing, and synthesizing the literature used in the research.

Theoretically, this research contributes to the development of education management studies by integrating the management function of facilities and infrastructure with the concept of quality of PAUD services. The resulting synthesis shows that service quality is not only related to the availability of facilities, but also to the quality of planning, utilization, maintenance, supervision, and evaluation of facilities on an ongoing basis. Practically, this study provides implications for the heads of PAUD units, institutional managers, educators,

and policy makers to make the management of facilities and infrastructure part of the quality improvement strategy, taking into account the needs of child development, safety, comfort, effectiveness of utilization, and sustainability of maintenance. Thus, the results of the synthesis are expected to be a conceptual and practical basis in developing a more effective early childhood education facilities and infrastructure management system, oriented to the needs of children, and supporting the continuous improvement of service quality.

B. RESEARCH METHODS

This study employed a quantitative approach using a Quasi-Experimental Design, specifically the Nonequivalent Control Group Design. This design was selected because the researcher was unable to randomly assign participants to the experimental and control groups, as the classes had been established by the school before the study was conducted. The design allows researchers to compare the learning outcomes of two existing groups by administering both pretests and posttests, while only the experimental group receives the treatment (Creswell & Creswell, 2023)

This research uses a library research method with an integrative literature review approach. This approach is used to identify, evaluate, compare, and synthesize various research results related to the management of facilities and infrastructure as well as the quality of Early Childhood Education (PAUD) services. The study is directed to gain a comprehensive understanding of the management function of facilities and infrastructure, its contribution to the quality of PAUD services, and the factors that affect the success of its management. The research process includes determining the focus of the study, searching the literature, selecting sources, assessing article quality, extracting data, analyzing content, and synthesizing findings. (Id et al., 2021) To increase the transparency of reporting the literature identification and selection process, this study uses the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) 2020 guidelines.

The literature selection process is carried out in stages. All search results in the initial stage were collected and checked based on title, author, year of publication, and relevance to the focus of the research. Articles identified as duplicate publications are excluded. Next, screening based on titles and abstracts is carried out to identify articles that have a

substantive relevance to the research objectives. Articles that meet the initial criteria are then examined in full-text assessment form to determine their suitability as a synthesis source. The process of identification, screening, eligibility check, and assignment of articles used in the analysis is reported through the PRISMA Flow Diagram as developed in PRISMA 2020 (J et al., 2021). The number of articles at each stage of selection is determined based on the actual research results and is reported transparently on the diagram.

This research uses a qualitative approach with the library research method. This method was chosen because the research aims to analyze, review, and synthesize various previous research results regarding the management of facilities and infrastructure in improving the quality of Early Childhood Education (PAUD) services. Library research allows researchers to gain a comprehensive understanding of a phenomenon through critical examination of various relevant scientific sources without collecting data directly in the field. (Snyder, 2021)

The selected literature must meet the inclusion criteria, namely discussing the management or management of educational facilities and infrastructure; related to the quality of services, learning environment, or quality of early childhood education; published in an accredited national scientific journal or peer-reviewed international journal; available in full text; and published in the 2021–2026 period. Meanwhile, literature is excluded if it is not directly related to the research focus, in the form of news, opinions, popular articles, or non-scientific publications, is not available in full text, does not provide adequate methodological information, or is a duplicate publication. Books and regulations are not treated as the main article in the selection process, but are used as conceptual and normative sources to support discussion. (Munastiwi & Uminar, 2022)

Data analysis was carried out using content analysis techniques as proposed by Krippendorff (2018), which was combined with a literature synthesis approach. The stages of analysis include: (1) identification and selection of relevant literature (Fitria et al., 2024) (2) data reduction through grouping based on research themes; (3) the presentation of data in the form of a synthesis matrix to compare the objectives, methods, and findings of previous research; (4) interpretation of similarities, differences, and trends of research results; and (5) drawing conclusions to formulate conceptual implications regarding the

management of facilities and infrastructure in improving the quality of Early Childhood Education services. To maintain the credibility of the research, triangulation of sources is carried out through the comparison of various scientific articles, academic books, and relevant regulations. In addition, each information used is verified based on the suitability of the theme, the credibility of the publisher, and the consistency of the findings between studies. With this approach, the results of the research are expected to be able to provide a comprehensive synthesis and can be a conceptual reference for managers of early childhood education institutions, academics, and researchers who study the management of educational facilities and infrastructure.

Articles that meet the inclusion criteria are then subjected to a methodological quality assessment (critical appraisal) to determine their suitability as a source of evidence in the synthesis process. The assessment was conducted using the Joanna Briggs Institute Critical Appraisal Tools with instruments tailored based on the research design of each article (Munn et al., 2022) The assessment includes clarity of the research objectives, suitability of the research design, characteristics and selection of data sources, data collection procedures, accuracy of analysis methods, and consistency between results and conclusions. The results of the quality assessment are used as a consideration in determining the strength of the evidence for each article. Articles that have methodological limitations but remain relevant are not automatically excluded, but the resulting findings are considered proportionately in the process of interpretation and synthesis.

Data from articles that have passed selection and quality assessment are then extracted using an analysis matrix. The information recorded included the author's name, year of publication, research objectives, research design, research context, focus on facilities and infrastructure management, main findings, supporting and inhibiting factors, and their implications for the quality of PAUD services. Extraction is carried out systematically to facilitate comparisons between sources and identify patterns of findings relevant to the research question. Data analysis was carried out using content analysis with a thematic approach. The analysis stage begins with a thorough reading of the selected article, then continues with the provision of coding information related to the focus of the study. The initial code includes aspects of planning, procurement, inventory, utilization, maintenance,

supervision, evaluation, quality of the learning environment, quality of services, as well as supporting and inhibiting factors in the management of facilities and infrastructure.

Codes that have similarities in substance are then grouped into broader categories and compared between sources to identify similarities, differences, and tendencies of findings. The coding process is carried out in stages through the identification of the initial code, the grouping of the code based on similarity of meanings, the review of the relationships between categories, and the determination of the synthesis theme. Based on this process, the synthesis is directed at three main themes, namely the function of facilities and infrastructure management in supporting early childhood education services, the contribution of facilities and infrastructure management to the quality of the environment and educational services, and factors that affect the success of facilities and infrastructure management. The findings of various articles are then compared based on the research context, institutional characteristics, methodological approaches, and research results to obtain a conceptual synthesis that answers the research questions.

The credibility of the synthesis results is maintained through cross-source comparisons and consistency checks between findings, interpretations, and conclusions. The results of the critical appraisal are also considered in determining the weight of interpretation of each article. Findings showing similar patterns were synthesized to derive general trends, while differences in results were analyzed based on the context and characteristics of the respective study. With this procedure, the results of the study not only present a summary of previous research, but also produce a synthesis that explains the relationship between the management of facilities and infrastructure and the quality of PAUD services and the factors that support its success.

C. FINDINGS AND DISCUSSION

1. Literature Synthesis Results

Based on the results of a review of various literature, it can be concluded that the management of facilities and infrastructure in early childhood education institutions is a systematic and sustainable process, starting from the planning stage to evaluation. The success of management is not only determined by the availability of facilities, but also by

the ability of the institution to manage all resources effectively according to the needs of children's development. Thus, the management of facilities and infrastructure is one of the strategic instruments in improving the quality of Early Childhood Education services. (Reinikah Fajarani, Ulfa'atun Sholihah, 2021) shows that the management of facilities and infrastructure carried out through planning, procurement, utilization, and maintenance can create a more conducive learning environment and support the achievement of educational goals. These findings are in line with (Suranto et al., 2022) which places the management of facilities and infrastructure as a process that includes planning, procurement, use, inventory, maintenance, and elimination in order to improve the quality of education. In the context of early childhood education, facility management has more specific characteristics because the educational environment must be adjusted to the needs and characteristics of child development. Early childhood education facilities and infrastructure are related to the implementation of various children's learning activities and need to meet standards that are in accordance with the needs of early childhood education. Thus, the success of management is not enough to see the number of facilities available, but also from the suitability of the facilities to the child's activities and their ability to support the learning process.

The results of the study (Makarau et al., 2023) provide stronger empirical evidence regarding the relationship. Research at Mutiara Nambo Bosaa Kindergarten, Banggai Regency shows that the management of facilities and infrastructure has a positive and significant effect on the quality of education. The study obtained a determination coefficient value of 0.795 or 79.5%, which shows that the management of facilities and infrastructure makes a great contribution to the quality of education in the institutions studied. These findings strengthen the argument that facility management cannot be positioned as an administrative activity alone, but has a relationship with the achievement of educational quality. However, because the study was conducted in one institution with a limited number of respondents, the results could not be directly generalized to all PAUD units. Precisely these limitations show the importance of looking at the relationship between facilities and infrastructure through the synthesis of various studies with different institutional characteristics.

Research (Sagala, 2022) on the management of facilities and infrastructure at Childcare Centers in Lampung also shows that facility management needs to pay attention to the characteristics of early childhood services. The research expands the understanding that the management of facilities and infrastructure in children's services is not only related to the provision of facilities, but also to how these facilities support the provision of services that suit children's needs. The findings reinforce the view that the management of PAUD facilities and infrastructure needs to be placed in the perspective of child services as a whole, not solely in the perspective of institutional asset management.

2. Management of Children's Needs Based on Facilities and Infrastructure

A synthesis of previous research shows that children's needs need to be the basis for determining the planning and utilization of early childhood education facilities and infrastructure. Early childhood learning characteristics that emphasize play, exploration, interaction, and hands-on experience demand the availability of a learning environment that allows children to move and engage safely. standardization of PAUD facilities and infrastructure is related to the implementation of children's learning activities. These findings show that educational facilities cannot be separated from the characteristics of the activities carried out by students. On the other hand, the results of the study (Makarau et al., 2023) show that the management of facilities and infrastructure has a significant contribution to the quality of education. If the findings are compared with studies that emphasize the importance of the suitability of facilities with children's activities, it can be seen that the quality of management has two complementary dimensions. The first dimension relates to the institution's ability to provide the necessary facilities, while the second dimension relates to the institution's ability to ensure that the facility actually functions in supporting the educational process. Thus, the completeness of facilities without proper utilization cannot be considered as an indicator of successful management.

Based on this comparison, the planning of PAUD facilities and infrastructure should not only be based on a list of administrative needs, but departed from mapping children's development needs and learning programs. This approach allows institutions to determine priorities based on the level of urgency, safety, pedagogical usefulness, and maintenance

capabilities. In this way, the procurement of facilities does not stop at the addition of assets, but is directed to produce a learning environment that truly provides benefits to children.

3. Management of Facilities and Infrastructure and Quality of Early Childhood Education Services

The literature analyzed shows a tendency to have a relationship between the management of facilities and infrastructure and the quality of education. (Makarau et al., 2023) for e.g., found a positive and significant influence of facilities and infrastructure management on the quality of education in the PAUD institutions studied. Meanwhile, (Reinikah Fajarani, Ulfa'atun Sholihah, 2021) shows that good management of facilities and infrastructure can support the creation of a comfortable and conducive learning environment. Both studies have a common point on the importance of management, but place different emphasis. Makarau et al. provide quantitative evidence on the relationship with education quality, while Fajarani et al. emphasize the management process and its implications on learning conditions.

This difference in focus gives the conceptual implication that facilities and infrastructure do not automatically improve the quality of services just because facilities are available. Facilities must go through a management and utilization process in order to produce educational benefits. In other words, the relationship between facilities and infrastructure and service quality takes place through the mechanism of using facilities in the learning process. This thinking is also supported by (Suranto et al., 2022) who emphasize that the management of facilities and infrastructure is directed so that facilities can be used effectively and efficiently to support the educational process.

From this perspective, the quality of PAUD services can be understood through the relationship between the availability, suitability, utilization, and sustainability of facilities. Availability is the initial condition that allows services to take place, while suitability determines whether the facility is relevant to the needs of the child. Utilization determines the facility's contribution to the learning experience, while maintenance keeps those benefits sustainable in the long term. This synthesis shows that the management of facilities and

infrastructure should be placed as part of the strategy to improve the quality of services, not just as the management of institutional assets.

4. Maintenance and Sustainability of Facilities and Infrastructure

Maintenance is an important part of ensuring that facilities remain safe and sustainable. (Suranto et al., 2022) include maintenance as one of the important stages in the facilities and infrastructure management cycle. This shows that the management process does not end when the facilities are completed, but continues on how the facilities are used and maintained in such a way that they continue to support educational goals. In the context of early childhood services, the maintenance aspect has broader consequences because the condition of the facility is related to the safety of the child. Therefore, facility management needs to be carried out preventively through periodic inspections, recording facility conditions, routine maintenance, and follow-up on facilities that have been damaged. A synthesis of previous research shows that procurement and maintenance are inseparable. The greater the number of facilities owned by the institution, the greater the need for a planned supervision and maintenance system.

Thus, the management of PAUD facilities and infrastructure needs to be understood as a continuous cycle. Planning results in prioritizing needs, procurement provides facilities, utilization connects facilities with the learning process, while maintenance and supervision maintain the sustainability of facility functions. The results of the evaluation then became the basis for planning in the next period. This cyclical pattern shows that the success of management is not only determined by the institution's ability to acquire facilities, but also by its ability to maintain the benefits of those facilities.

5. Factors Affecting Successful Management

The results of the synthesis show that the success of the management of facilities and infrastructure is influenced by a combination of managerial factors and resources. (Makarau et al., 2023) is a strong relationship between facilities and infrastructure management and the quality of education, while (Reinikah Fajarani, Ulfa'atun Sholihah, 2021) emphasizes the importance of a systematic management process so that facilities can be used effectively.

The findings show that the quality of management is not only determined by the amount of resources it has, but also by the capacity of the institution to plan and optimize it.

Limited financing can be an obstacle when institutions have to meet the needs of fairly diverse facilities. However, the results of the synthesis show that these problems cannot simply be solved by increasing the amount of the budget. The ability to prioritize, determine the most urgent needs, utilize facilities efficiently, and perform routine maintenance also determine the effectiveness of resource use. Therefore, strengthening managerial capacity is important so that limited resources can still provide maximum benefits for PAUD services. Effective management also requires the involvement of various parties within the institution. Educators are direct users of facilities in learning so that they have a role in ensuring the suitability and utilization of facilities. The head of the education unit has a coordinating and supervisory function, while parents and the community can provide support for the sustainability of services. Thus, the management of facilities and infrastructure needs to be developed as a shared responsibility supported by a clear coordination system.

6. Critical Synthesis and Conceptual Models

A comparison of various research results shows that there are similarities in placing facilities and infrastructure as important components for the quality of education, but there are differences in explaining the mechanism of their contribution. Research (Makarau et al., 2023) provides quantitative evidence on the influence of facilities and infrastructure management on the quality of education, while research (Reinikah Fajarani, Ulfa'atun Sholihah, 2021) emphasizes the importance of the management process in creating a conducive learning environment. Meanwhile, in the aspect of standardization and its suitability with children's activities. These differences show that the quality of facilities and infrastructure cannot be reduced to one indicator, but is the result of the interaction between availability, suitability, management, and utilization of facilities.

Based on this pattern, this study proposes a conceptual framework for the management of PAUD facilities and infrastructure based on the needs of child development. The framework places the needs of children as the starting point in determining facility planning. Planning is then directed to procurement according to priorities, pedagogical utilization of facilities, and continuous maintenance and supervision. The entire process is directed to produce a learning environment that is safe, healthy, comfortable, inclusive, and able to provide stimulation that is in accordance with children's development. The conceptual framework emphasizes that the success of facilities and infrastructure management should not be measured solely by the number or completeness of facilities. A more substantive measure is the ability of institutions to transform available facilities into educational resources that function and provide benefits to children. Within this framework, leadership, management competence, financing, community participation, and policy support function as factors that strengthen or hinder the effectiveness of each stage of management.

7. Research Limitations and Further Research Directions

This study has limitations because it uses secondary sources so that it does not directly observe the condition of facilities and infrastructure in the PAUD unit. In addition, differences in institutional characteristics, research areas, methodological approaches, and education quality indicators cause the results of previous research to not always be directly comparable. Therefore, the results of the synthesis need to be understood as a conceptual construction based on the pattern of literature findings, not as an empirical generalization of all PAUD units.

The next research can test the conceptual framework produced through empirical research on various characteristics of PAUD institutions. Quantitative research can be used to examine the relationship between the quality of facilities and infrastructure management and service quality indicators, while qualitative research can deepen how heads of education units and educators make decisions related to the planning, utilization, and maintenance of facilities. Comparative research between regions is also needed to find out how differences

in policies, financing, and social conditions affect the management of early childhood education facilities and infrastructure.

D. CONCLUSIONS AND SUGGESTIONS

This research aims to analyze the concept, implementation, and contribution of facilities and infrastructure management in improving the quality of Early Childhood Education (PAUD) services through a literature study approach. Based on the results of the synthesis of various literature, it can be concluded that facilities and infrastructure management is a management process that includes planning, procurement, inventory, utilization, maintenance, supervision, and evaluation in a systematic manner. All of these stages are interrelated and become the basis for creating a safe, comfortable, effective, and suitable learning environment for children's development. The results of the study also show that the success of facilities and infrastructure management is not only determined by the availability of facilities, but is influenced by the leadership of the head of the PAUD unit, the competence of educators and education personnel, the adequacy of funding, the participation of parents and the community, and the implementation of continuous monitoring and evaluation. The synergy between these factors allows the management of facilities and infrastructure to run more effectively so that it can support the improvement of the quality of the learning process, the comfort of the learning environment, and the satisfaction of education service users.

In addition, this study confirms that the relationship between facilities and infrastructure management and the quality of PAUD services is strategic. Optimally managed educational facilities not only increase the effectiveness of learning, but also strengthen the institution's quality assurance system. Therefore, the management of facilities and infrastructure needs to be seen as an integral part of education management that is oriented towards improving the quality of services in a sustainable manner. Academically, this research contributes in the form of a synthesis of various research results on the management of facilities and infrastructure in the context of PAUD so as to produce a more comprehensive understanding of the factors that support the improvement of service quality. These findings are expected to be a reference for early childhood education institution

managers, policy makers, and researchers in developing more effective and sustainable facilities and infrastructure management strategies.

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