Implementation of basic education data system (dapodik) management in student data management in early childhood education

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ABSTRACT

This study investigates the implementation of the Basic Education Data System (DAPODIK) in student data management at TK Al Hidayah Tanjung Jaya, an early childhood education institution in Indonesia. Using a qualitative descriptive case study approach, data were collected through observations, in-depth interviews, and documentation involving the principal, DAPODIK operator, and teachers. The findings reveal that DAPODIK management has been implemented through four core management functions: planning, organizing, implementation, and supervision. Planning includes assigning responsible personnel and scheduling data collection, while organizing emphasizes collaboration among school stakeholders despite the operator's multiple administrative responsibilities. The implementation process involves routine data entry, updating, and synchronization but is constrained by incomplete parental documentation, limited operator technical competence, inadequate technological facilities, and unstable internet connectivity. Furthermore, supervision and data quality evaluation are conducted only on an incidental basis and lack a structured monitoring mechanism. The study concludes that although DAPODIK has supported student data management, its implementation remains suboptimal. Strengthening human resource capacity, establishing comprehensive standard operating procedures, improving task distribution, and enhancing technological infrastructure are recommended to improve the effectiveness and reliability of education data management in early childhood education institutions.

Keyword: Dapodik; education data management; student data; early childhood education

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1. INTRODUCTION

Education is one of the strategic sectors in national development that plays a vital role in improving the quality of human resources. In modern educational systems, educational management is not only concerned with the learning process but also with the management of accurate educational information and data as a basis for decision-making. Educational data are essential for planning, implementing, and evaluating educational policies; therefore, systematic and integrated data management has become an indispensable component of educational management (Nuryadi & Widiatmaka, 2023). The availability of valid and reliable educational data enables policymakers to make more objective and evidence-based decisions.

Along with the rapid advancement of information and communication technology, the Indonesian Ministry of Education, Culture, Research, and Technology has developed the Basic Education Data System (DAPODIK) as an integrated national educational data management system. This system is designed to collect strategic information related to educational institutions, students, teachers and educational personnel, infrastructure, and other components associated with educational administration. The data stored in DAPODIK serve as the primary basis for various educational policies, including the allocation of operational funding, teacher workforce planning, and the mapping of educational quality at both national and regional levels (Kemdikbudristek, 2022). Consequently, the quality of data entered into the DAPODIK system plays a significant role in ensuring the accuracy of government educational policies.

From an educational management perspective, information systems such as DAPODIK should be implemented through the fundamental management functions of planning, organizing, implementation, and

supervision. The application of these management functions aims to ensure that educational data management is conducted systematically, effectively, and sustainably. Effective educational data management produces accurate information that supports more informed and appropriate educational decision-making (Agustiana et al., 2023). Conversely, ineffective data management may lead to inaccurate information, errors in educational planning, and reduced accountability in educational administration.

At the early childhood education level, including kindergartens, DAPODIK plays a crucial role in supporting effective and high-quality educational services. Accurate student data provide a foundation for planning learning programs, managing educational operational assistance, and identifying infrastructure needs (Panjaitan et al., 2024). Furthermore, a well-managed data system enhances transparency and accountability in educational administration for both government authorities and the public.

Despite its importance, the implementation of DAPODIK management in educational institutions continues to face various challenges, particularly in early childhood education settings. Common issues include limited human resource competencies in managing educational information systems, inadequate technological infrastructure, and insufficient coordination in educational data management (Mareray et al., 2025). These limitations hinder the optimal management of educational data and may reduce the quality of information generated by the DAPODIK system.

Although DAPODIK has been implemented nationwide, research focusing on its management practices in early childhood education institutions remains relatively limited. Previous studies have predominantly examined the utilization of DAPODIK at the primary and secondary education levels. However, early childhood education institutions possess unique characteristics, including limited human resources, inadequate technological facilities, and significant dependence on parents for providing students' administrative documents. These conditions indicate a research gap that warrants further investigation, particularly regarding the implementation of DAPODIK management in student data administration within early childhood education institutions.

Based on preliminary observations conducted at TK Al Hidayah Tanjung Jaya, several issues were identified in the management of student data through the DAPODIK system. These challenges include the limited technical competence of the DAPODIK operator, insufficient information technology facilities, and incomplete student documentation provided by parents. Such conditions suggest that DAPODIK management within the institution requires further improvement to ensure that the generated data effectively support educational management processes.

In response to these issues, this study was conducted to examine the implementation of Basic Education Data System (DAPODIK) management in student data administration at TK Al Hidayah Tanjung Jaya, an early childhood education institution. Specifically, the study aims to describe the implementation process of DAPODIK management, identify the challenges encountered in student data management, and explain the strategies adopted by the school to address these challenges.

2. RESEARCH METHOD

This study employed a qualitative approach with a descriptive method to gain an in-depth understanding of the implementation of Basic Education Data System (DAPODIK) management in student data administration. A qualitative approach was selected to explore naturally occurring phenomena within a specific social context and to provide a comprehensive understanding of educational data management processes in educational institutions (Fattah, 2023).

The research was conducted at TK Al Hidayah Tanjung Jaya, an early childhood education institution in Indonesia. The site was purposively selected because it has implemented the DAPODIK system for managing educational data, particularly student records at the early childhood education level.

The research participants consisted of the principal, the DAPODIK operator, and teachers who were directly involved in student data management. Informants were selected using purposive sampling based on their relevance and direct involvement with the research focus.

The study utilized both primary and secondary data sources. Primary data were collected through in-depth interviews with the selected informants and direct observations of the DAPODIK data management process within the school. Secondary data were obtained from school administrative documents, student data reports, and other relevant documents related to educational data management.

Data collection techniques included observation, interviews, and documentation. Observations were conducted to directly examine the implementation of student data management through the DAPODIK system. In-depth interviews were carried out to obtain detailed information regarding the implementation of DAPODIK management and the challenges encountered in managing student data. Documentation was used to gather supporting evidence from administrative records and other relevant educational documents.

Data analysis followed the interactive model proposed by Miles and Huberman, consisting of three stages: data reduction, data display, and conclusion drawing. Data reduction involved selecting and simplifying information relevant to the research objectives, while data display was presented in a descriptive format to facilitate the interpretation of findings. Finally, conclusions were drawn through a systematic interpretation of the analyzed data.

The trustworthiness of the data was ensured through source triangulation and technique triangulation. Source triangulation was conducted by comparing information obtained from different informants, whereas technique triangulation involved cross-checking data collected through observations, interviews, and documentation to enhance the validity and credibility of the research findings.

3. RESULTS AND DISCUSSION

A. Implementation of DAPODIK Management in Student Data Administration

Educational data management is an essential component of modern educational administration, particularly in supporting data-driven decision-making. One of the systems utilized by the Indonesian government for educational data management is the Basic Education Data System (DAPODIK), which serves as the primary database for educational institutions. Based on the findings at TK Al Hidayah Tanjung Jaya, the implementation of DAPODIK management in student data administration is carried out through four fundamental management functions: planning, organizing, implementation, and supervision.

Figure 1. Framework of DAPODIK Management Implementation in Student Data Administration

Figure 1 illustrates the framework for implementing DAPODIK management in student data administration at TK Al Hidayah Tanjung Jaya. The framework demonstrates that the student data management process through the DAPODIK system is conducted using four key management functions: planning, organizing, implementation, and supervision. These functions are interconnected and collectively establish a systematic educational data management process, enabling the resulting data to effectively support educational decision-making. Based on this framework, the following discussion provides a more detailed explanation of each management function implemented in student data administration through the DAPODIK system at TK Al Hidayah Tanjung Jaya.

1) Planning for Student Data Management

Planning represents the initial stage of the management process and aims to determine the steps required for effective educational data management. The findings indicate that planning for student data management at TK Al Hidayah Tanjung Jaya involves appointing personnel responsible for DAPODIK management and establishing a schedule for student data collection at the beginning of each academic year.

During this process, coordination is carried out among the principal, the DAPODIK operator, and teachers to ensure that the collected student information corresponds with the administrative documents provided by parents or guardians. Nevertheless, the findings reveal that the planning process is not yet fully supported by comprehensive written Standard Operating Procedures (SOPs) governing student data management mechanisms in detail.

From the perspective of educational management, effective planning is a critical factor in determining the success of educational programs. Well-defined planning enables organizations to direct their activities more

effectively and systematically (Agustiana et al., 2023). The findings further indicate that the planning process for student data management through the DAPODIK system at TK Al Hidayah Tanjung Jaya consists of several key activities involving multiple stakeholders within the school environment. A summary of these planning activities is presented in Table 1.

Table 1. Planning of Student Data Management through the DAPODIK System

Planning Aspect	Activity	Parties Involved	Research Findings
Assignment of data management responsibility	Appointment of a DAPODIK operator responsible for student data entry and updating	Principal and DAPODIK operator	Student data management is centralized under the operator appointed by the principal
Preparation of the student data collection schedule	Determination of the timeline for collecting students' administrative documents at the beginning of the academic year	Principal, operator, and teachers	Data collection is conducted during the new student admission period
Coordination of data collection	Coordination between teachers and the operator in collecting student documents from parents	Principal, operator, and teachers	Coordination ensures the completeness of required documents, such as family cards and birth certificates
Development of data management procedures	Establishment of procedures for collecting and entering student data into the DAPODIK system	Principal and operator	No detailed written Standard Operating Procedures (SOPs) are currently available to regulate student data management

As shown in Table 1, planning for student data management includes assigning responsible personnel, scheduling data collection activities, and coordinating efforts among the principal, the DAPODIK operator, and teachers. However, the planning process has not yet been fully supported by detailed written Standard Operating Procedures (SOPs), indicating the need for a more systematic and standardized framework to enhance the effectiveness of student data management.

2) Organizing Student Data Management

Organizing is one of the fundamental management functions that regulates the distribution of tasks, responsibilities, and coordination among individuals involved in organizational activities. In the context of educational data management, organizing aims to ensure that every stakeholder has clearly defined roles and responsibilities so that the data management process can be carried out effectively and systematically. Effective organizational management facilitates coordination among organizational members and enhances operational efficiency (Agustiana et al., 2023).

Based on the findings of this study, the organization of Basic Education Data System (DAPODIK) management at TK Al Hidayah Tanjung Jaya involves several stakeholders with distinct roles and responsibilities, namely the principal, the DAPODIK operator, and teachers. This distribution of responsibilities is intended to ensure that student data management is coordinated effectively from the initial data collection stage to data entry and updating within the DAPODIK system.

The principal serves as the primary person responsible for educational data management within the institution. In this capacity, the principal coordinates data management activities and ensures that the student registration and data collection processes comply with applicable regulations. Effective leadership by the principal is essential because it contributes to a more organized and accountable educational data management system.

Meanwhile, the DAPODIK operator performs the technical aspects of educational data management. The operator is responsible for entering student data, updating information whenever changes occur, and synchronizing the data with the central DAPODIK server. The operator's role is critical because the quality of the entered data directly influences the accuracy of information used for educational planning and decision-making (Kemdikbudristek, 2022).

Teachers also contribute to the student data management process by assisting in the collection of students' administrative documents from parents or guardians. They function as intermediaries between the school and parents, ensuring that the submitted administrative records correspond to official family documents. Through teacher involvement, the completeness and validity of student data can be more effectively maintained.

However, the findings reveal that the DAPODIK operator at TK Al Hidayah Tanjung Jaya frequently performs multiple administrative duties beyond data management. This situation results in a considerable workload that may reduce the effectiveness of educational data management. Limited human resources in

educational information system management remain a common challenge, particularly in institutions with a shortage of administrative personnel.

These findings are consistent with Panjaitan et al. (2024), who argue that educational information systems require clear task allocation and adequate human resources to ensure optimal data management processes. Likewise, Mareray et al. (2025) reported that limited data management personnel and excessive workloads often hinder the effective implementation of educational information systems in schools.

Therefore, the organization of student data management through the DAPODIK system requires clearly defined responsibilities and sufficient human resources to ensure efficient operations and produce accurate and reliable educational data. The findings indicate that the organization of student data management involves close coordination among the principal, the DAPODIK operator, and teachers, each fulfilling specific functions within the educational data management process. A summary of their respective roles is presented in Table 2.

Table 2. Organization of Student Data Management

Stakeholder	Role	Findings
Principal	Coordinates and supervises data management activities	Responsible for the overall management of school data
DAPODIK Operator	Conducts data entry, updates, and synchronization	Also performs additional administrative duties
Teachers	Collect students' administrative documents from parents	Assist in ensuring data completeness and accuracy

As presented in Table 2, the organization of student data management through the DAPODIK system at TK Al Hidayah Tanjung Jaya involves several stakeholders with complementary roles and responsibilities. The principal acts as the primary coordinator responsible for overseeing educational data management and ensuring that student registration activities comply with established regulations. Meanwhile, the DAPODIK operator carries out technical responsibilities, including data entry, updating, and synchronization within the DAPODIK system. Teachers support the process by collecting students' administrative documents from parents or guardians, thereby helping to maintain the completeness and accuracy of student records.

These findings demonstrate that student data management is implemented through collaboration and coordination among school stakeholders. The clear allocation of responsibilities among the principal, the DAPODIK operator, and teachers is an important factor supporting the smooth implementation of educational data management. In educational management, effective organization enhances operational efficiency because each stakeholder understands and performs their assigned responsibilities in achieving organizational objectives (Agustiana et al., 2023).

Nevertheless, the study also found that the DAPODIK operator frequently handles multiple administrative responsibilities in addition to data management tasks. This additional workload has the potential to reduce the effectiveness of student data management processes. Limited human resources remain one of the primary challenges in managing educational information systems, particularly in institutions with a small number of administrative staff.

These findings are in line with Panjaitan et al. (2024), who emphasized that educational information system management requires clear task allocation and adequate human resource support to ensure optimal performance. Therefore, organizing student data management through the DAPODIK system should be supported by effective coordination and proportional task distribution to improve operational efficiency and ensure the production of accurate and reliable educational data.

3) Implementation of Student Data Management

Implementation represents the operational stage of the planning and organizing processes that have been established previously. At this stage, the activities designed during the management process are carried out to achieve the predetermined objectives. In the context of educational data management, implementation plays a crucial role in ensuring that the collection, processing, and updating of student data are conducted systematically, thereby producing accurate and reliable information (Agustiana et al., 2023).

Based on the findings of this study, the implementation of student data management through the Basic Education Data System (DAPODIK) at TK Al Hidayah Tanjung Jaya is carried out through several interrelated stages. These include the collection of students' administrative documents, data entry into the DAPODIK application, data updating when changes occur, and synchronization of the data with the central server.

The initial stage involves collecting students' administrative documents during the new student admission process. At this stage, parents or guardians are required to submit essential documents, such as

family cards, birth certificates, and other supporting records that serve as the basis for student registration. These documents are subsequently verified by the school to ensure that the information entered into the DAPODIK system corresponds with the official records provided by the students' families.

Following document collection, the DAPODIK operator performs the student data entry process within the DAPODIK application. This process includes recording student identities, family information, and other supporting data according to the standardized format provided by the system. In addition to entering data, the operator is responsible for updating records whenever changes occur, such as modifications to residential addresses, family status, or other administrative information. Regular data updating is essential to ensure that the information stored in the DAPODIK system remains current and accurate.

After data entry and updating have been completed, the DAPODIK operator synchronizes the information with the central server. This synchronization process transmits the recorded data to the national DAPODIK database, allowing it to become part of the integrated national education information system managed by the government.

Nevertheless, the findings indicate that several challenges remain in the implementation of student data management. One major issue is the limited technical competence of the DAPODIK operator, particularly when adapting to system updates or changes in data formats. In addition, inadequate technological infrastructure, including limited computer facilities and unstable internet connectivity, often hinders the management process, especially during data synchronization with the central server.

Another challenge identified in this study is the incomplete administrative documentation provided by parents. Some parents lack awareness of the importance of submitting complete educational documents, resulting in delays in student data entry. This finding suggests that successful educational data management depends not only on the preparedness of the school but also on active cooperation from parents in providing complete and accurate administrative records.

These findings are consistent with Mareray et al. (2025), who reported that limited human resources and insufficient technological facilities frequently hinder the implementation of educational information systems in schools. Similarly, Panjaitan et al. (2024) emphasized that the effectiveness of educational information system management is strongly influenced by the competence of data managers and the availability of adequate technological infrastructure.

Therefore, the implementation of student data management through the DAPODIK system requires competent human resources, sufficient information technology facilities, and strong collaboration between schools and parents to ensure optimal data management and the production of accurate educational information. To provide a systematic overview of this implementation process, the stages of student data management at TK Al Hidayah Tanjung Jaya are summarized in Table 3.

Table 3. Implementation of Student Data Management through the DAPODIK System

Implementation Stage	**Activities Performed**	**Parties Involved**	**Research Findings**
Collection of students' administrative documents	Collecting family cards, birth certificates, and other supporting documents from parents	Teachers and parents	Documents serve as the basis for student registration
Student data entry	Entering student identity information into the DAPODIK application based on verified documents	DAPODIK operator	Data entry is conducted by the school operator
Student data updating	Updating records when changes occur, such as address or family information	DAPODIK operator	Updates are performed periodically as needed
Data synchronization	Synchronizing entered data with the central server through the DAPODIK system	DAPODIK operator	Synchronization is occasionally disrupted by internet connectivity issues

As presented in Table 3, student data management through the DAPODIK system at TK Al Hidayah Tanjung Jaya is implemented through a sequence of interconnected activities, beginning with the collection of administrative documents and ending with data synchronization to the central server. These stages demonstrate that student data management is carried out systematically through the involvement of multiple stakeholders within the school environment.

The implementation process begins with collecting administrative documents from parents, which provide the foundation for student registration. Subsequently, the DAPODIK operator enters student information into the system based on the verified documents and performs periodic updates whenever changes

occur. The final stage involves synchronizing the data with the national server to ensure integration into the national education database.

Although these procedures are routinely implemented, the study identified several challenges affecting their effectiveness, including the operator's limited technical expertise, inadequate information technology facilities, and incomplete administrative documents provided by parents. These findings suggest that successful educational data management depends not only on the readiness of the information system itself but also on the competence of human resources and the availability of adequate technological infrastructure.

The results are consistent with Mareray et al. (2025), who concluded that limited human resources and insufficient information technology facilities remain significant obstacles to the successful implementation of educational information systems in educational institutions.

4) Supervision of Student Data Management

Supervision is one of the essential management functions intended to ensure that organizational activities are implemented in accordance with established plans. In the context of educational data management, supervision is necessary to guarantee the accuracy, completeness, and consistency of data maintained through educational information systems.

Based on the findings of this study, supervision of the Basic Education Data System (DAPODIK) at TK Al Hidayah Tanjung Jaya is primarily conducted by the principal through the verification of data entered by the DAPODIK operator. This verification process aims to ensure that the student information recorded in the DAPODIK system corresponds with the official administrative documents provided by students and their families.

In addition, data quality evaluations are carried out whenever data updates occur or during the synchronization process with the central server. Through these activities, the school can identify and correct any errors or inconsistencies before the information is integrated into the national educational database.

However, the findings indicate that supervision of student data management is still conducted on an incidental basis and has not yet been implemented through a structured and regularly scheduled evaluation mechanism. This condition suggests that the existing supervision system requires further improvement to optimize the educational data management process.

From the perspective of educational management, effective supervision is essential to ensure that all organizational activities are carried out according to established objectives while simultaneously improving the overall quality of educational management (Agustiana et al., 2023). Therefore, supervision of student data management through the DAPODIK system should be implemented in a more systematic and sustainable manner to ensure the reliability and quality of educational data. To provide a clearer overview of the supervision process at TK Al Hidayah Tanjung Jaya, a summary of supervisory activities is presented in Table 4.

Table 4. Supervision of Student Data Management

Supervision Aspect	Activity	Parties Involved	Research Findings
Student data verification	Verifying the consistency of student data entered into the DAPODIK system against official administrative documents	Principal and DAPODIK operator	Conducted directly by the principal
Data quality evaluation	Assessing the completeness and accuracy of student data within the DAPODIK system	Principal and operator	Performed whenever data updates occur
Supervision of data synchronization	Ensuring that synchronization with the central server is successfully completed	Principal and DAPODIK operator	Conducted during the synchronization process
Monitoring of data management	Monitoring the student data management activities performed by the operator	Principal	Supervision remains incidental rather than systematic

As shown in Table 4, supervision of student data management through the DAPODIK system at TK Al Hidayah Tanjung Jaya includes several activities, such as verifying student records, evaluating data quality, and monitoring the synchronization process with the central server. These supervisory activities are led by the principal in collaboration with the DAPODIK operator, who is responsible for the technical management of educational data within the school. Through this process, the school ensures that student information entered into the DAPODIK system is consistent with official administrative documents. Furthermore, data evaluations are conducted whenever updates or synchronization activities take place to minimize potential errors before integration into the national education database.

Despite these efforts, the study found that supervision is still performed only on an incidental basis and lacks a structured evaluation schedule. This finding indicates that the supervision system for educational data management requires further enhancement to improve the overall effectiveness of the process. From an educational management perspective, effective supervision is crucial for ensuring that organizational activities align with predetermined objectives while contributing to continuous improvements in educational management quality (Agustiana et al., 2023). Therefore, implementing a more systematic and continuous supervision mechanism would strengthen the reliability and effectiveness of student data management through the DAPODIK system.

B. Challenges in Student Data Management through the DAPODIK System

Based on the findings of this study, several challenges were identified in the implementation of DAPODIK management for student data administration at TK Al Hidayah Tanjung Jaya. These challenges originate from both internal and external factors. One of the primary issues is the limited availability of human resources responsible for managing the DAPODIK system. The DAPODIK operator frequently undertakes additional administrative responsibilities, preventing the student data management process from being carried out optimally.

Furthermore, inadequate information technology infrastructure, including limited computer facilities and unstable internet connectivity, presents significant obstacles to effective data management. Poor internet connectivity often disrupts the synchronization of student data with the central server. Another challenge identified in this study is the incomplete administrative documentation provided by parents. Some parents lack awareness of the importance of submitting complete educational documents, resulting in delays in the student data entry process.

These findings are consistent with previous studies indicating that limitations in human resources, information technology infrastructure, and coordination with parents are common factors affecting the effectiveness of educational data management in schools (Panjaitan et al., 2024).

C. Strategies for Addressing Challenges in Student Data Management

To address these challenges, the school has implemented several initiatives to improve the effectiveness of student data management through the DAPODIK system. One of the primary strategies involves strengthening coordination among the principal, the DAPODIK operator, and teachers throughout the student data management process.

In addition, the school actively communicates with parents to ensure the completeness of the administrative documents required for student registration and data collection. Improved communication with parents facilitates a more efficient and accurate student data collection process.

The school also seeks to enhance the competence of the DAPODIK operator by providing opportunities for training and consultation with DAPODIK operators at the district and regency levels. These initiatives are intended to improve the operator's technical skills in managing the DAPODIK system, thereby enabling student data management to be conducted more effectively, efficiently, and accurately.

4. CONCLUSION

Based on the findings of this study on the implementation of Basic Education Data System (DAPODIK) management in student data administration at TK Al Hidayah Tanjung Jaya, it can be concluded that student data management has been implemented through the four fundamental management functions: planning, organizing, implementation, and supervision. During the planning stage, the school designated a DAPODIK operator and established a schedule for student data collection at the beginning of each academic year. The organizing stage involved a clear distribution of responsibilities among the principal, the DAPODIK operator, and teachers in managing student data. Furthermore, the implementation process encompassed the collection of students' administrative documents, data entry into the DAPODIK application, periodic data updating, and synchronization with the central server. Supervision was conducted through data verification by the principal and data evaluation during updates and synchronization activities.

Although student data management through the DAPODIK system has been implemented, the findings indicate that its execution has not yet reached an optimal level. Several challenges were identified, including limited human resources for DAPODIK management, inadequate information technology infrastructure, and incomplete administrative documents provided by parents. In addition, supervision remains largely incidental and has not been supported by a structured and regularly scheduled evaluation mechanism.

The findings demonstrate that the successful implementation of DAPODIK management in student data administration depends not only on the effectiveness of the system itself but also on the readiness of human

resources, the availability of adequate technological infrastructure, and effective coordination between the school and parents. Therefore, efforts should be directed toward strengthening the capacity of data management personnel, improving supporting technological facilities, and establishing more systematic supervision mechanisms to enhance the effectiveness of educational data management and ensure the availability of accurate data for evidence-based educational decision-making.

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