

# IMPLEMENTATION OF AN EDUCATIONAL MANAGEMENT INFORMATION SYSTEM BASED ON INFORMATION AND COMMUNICATION TECHNOLOGY AT SMP NEGERI 4 GERUNG

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**Abstract:** This research aims to describe the management of an ICT-based education management information system at SMP Negeri 4 Gerung and to describe the use of an ICT-based education management information system at SMP Negeri 4 Gerung. The sub-focus of this research is the management and use of dapodik at SMP Negeri 4 Gerung. The method used in this research is a case study with a qualitative approach. Data collection through observation, interviews, and documentation with data reduction analysis, data display, conclusions and data verification. The validity of the data is tested by credibility, transferability, dependability and confirmability. The results of this research show that: 1) The management of the dapodik of SMP Negeri 4 Gerung is centered on one person, namely the school operator, the information data on the dapodik is also updated periodically and if there are changes to be made they must be synchronously reported to the center using the same procedures. has been determined. There is some Dapodik data information that can be accessed by the general public via <https://sekolah.data.kemdikbud.go.id>, for example, such as school profiles or number of students. 2) Dapodik is used as a school database starting from student data, parents, teachers, principals, school staff to alumni data. Dapodik is also used in the process of disbursing BOS funds. All data related to data collection on BOS funds, Special Allocation Funds, Poor Student Assistance, and others, is managed and recorded in Dapodik. Dapodik is also related to teacher certification, whether or not it is legal for teachers to obtain certification. If an error occurs in Dapodik then teacher certification cannot automatically be disbursed. When using the Dapodik application, there are also several improvements that need to be made to the Dapodik feature.

**Keywords:** Management Information System, Dapodik

## INTRODUCTIONS

Progress in information technology has been taking place at a rapid pace, as evidenced by the many complex new technologies currently being developed and providing effective benefits for individuals in meeting their needs. The technology in question is information technology. Changes and people's needs for technology are triggered by increasingly sophisticated and fast demands (Mustari, 2023). Information systems and information technology applied can play a role in implementing several strategies, such as differentiation, innovation and cost control.

For educational institutions, the use of academic management information systems (MIS) plays an important role in improving quality and assisting decision-making and management tasks. Academic

information systems provide assistance to educational institutions in handling academic data including teacher, student, and grade information. The need for educational services is a challenge for schools to consistently practice efficient school management because schools are educational institutions that experience development and growth following the times. As directed by the national education development policy in the Regulation of the Minister of National Education of the Republic of Indonesia No. 2 of 2010 regarding the Ministry of National Education's Plan for 2010–2014, the expansion and strengthening of the use of Information and Communication Technology (ICT) in the field of education is intended to support ways of equality and improving the quality, access to education

and increasing the effectiveness of education.

The use of ICT in schools requires the ability to manage information systems optimally so that academic and administrative activities can run optimally. Then, in his opinion (Etin, 2011), the quality of an academic information system that is considered good can be used to make good decisions. When users are satisfied with the information system and the integration of the information system in their activities so that the information is effective and efficient. As is the case with research conducted by Melhana (2022) which shows that the role of management information systems is urgently needed along with the rapid advancement of technology so that the implementation of SIM should have started to be carried out as optimally as possible. The school also often makes efforts to access the information provided so that the desired information can be obtained quickly.

With easy access to this information, it will certainly have an impact on the smooth running of the learning and administrative processes carried out in schools. This is also reinforced by research Pramungkas (2020) which says that the application of an ICT-based management information system can be a supporting tool in achieving programs carried out in the teaching and learning process, using infrastructure and increasing teacher professionalism.

Management involves the main functions performed by leaders or managers, namely planning or planning, organizing or organizing, actuating or providing direction and controlling or supervising (Mustari, 2022). In practice, the application or implementation of an educational academic management information system requires an analysis and a good plan according to conditions inside or outside the organization. Then it is necessary to carry out the process of selecting a management information system model based on the needs of the organization (Oktora, 2019).

Based on the results of initial observations at SMP Negeri 4 Gerung, namely a school located in West Lombok. SMP Negeri 4

Gerung is also one of the favorite schools in Gerung District, West Lombok Regency. As one of the large schools in West Lombok Regency, Gerung 4 Public Middle School has utilized and implemented ICT-based SIMs including using dapodik, arkas, SIPLah, and e-reports applications. There is also a school web-based academic management information system at SMP Negeri 4 Gerung, although its utilization is not optimal. In addition to administrative and academic processes, Gerung 4 Public Middle School has also implemented an online PPDB system which was implemented during the COVID-19 pandemic. In addition, SMPN 4 Gerung also has a digital library with the name E-library SMPN 4 Gerung, but its use is still not optimal. As the results of Sonia (2020) conducted at Madrasah Aliyah Negeri 2 Ponorogo which also utilizes several management information systems such as the SIMPATIKA application (Education Information System and Education Personnel of the Ministry of Religion), fingerprint applications for teachers and students and web-based applications for PPDB on line.

In general, the use of ICT-based management information systems at SMP Negeri 4 Gerung is very helpful in academic and administrative processes for employees, teachers and students. In using management information systems at SMP Negeri 4 Gerung, there are still a number of things that need to be optimized and provided assistance to improve skills. every school member in utilizing ICT-based management information systems.

From the existing background, researchers are interested in studying more deeply related to "Implementation of Information and Communication Technology-Based Education Management Information Systems at SMP Negeri 4 Gerung" especially in the use of the DAPODIK application.

## **METHOD**

This study applies a qualitative approach and provides descriptive data results in written form using the case study method. The criteria for a case study are: (1) identifying cases in a study; (2) the case is a

"system bound" by place and time; (3) case studies apply several sources of information to collect data to provide systematic ideas, and (4) apply a case study approach (Moleong, 2017). Qualitative research aims to provide an understanding of social problems in the form of a holistic picture and a lot of deep understanding.

This research focuses on the implementation of an education management information system based on information and communication technology which is specifically for the management of a dapodik-based education management information system at SMP Negeri 4 Gerung. This research was conducted at SMP Negeri 4 Gerung. The research data consists of primary data and secondary data. Initial data was obtained through direct observation and interviews with research informants in the form of information about the use of the education management information system at SMP Negeri 4 Gerung, then delved deeper into the management of dapodik at SMP Negeri 4 Gerung. Meanwhile, secondary data was obtained through the documentation study method by collecting documents and images related to the management of the Dapodik-based education management information system at SMP Negeri 4 Gerung.

There are primary data sources and secondary data sources. Primary data sources are data sources obtained from searching for original sources from informants, recording primary data sources through observations and interviews obtained from combining listening, viewing and asking questions to informants (Sugiyono, 2019). The data sources (informants) in this research were the principal, school operator, head of administration and teachers at SMP Negeri 4 Gerung. Meanwhile, the data analysis technique used in this research is qualitative descriptive data analysis technique. The interactive qualitative descriptive data analysis model consists of four stages: data collection, data reduction, data presentation, and conclusion drawing/verification. Credibility, transferability, reliability, and confirmability

are used to check the validity of the data used.

## RESULT AND DISCUSSION

In relation to the management of the dapodik-based education management information system at SMP Negeri 4 Gerung in terms of Operational Standards (SOP) and policies that apply at the school regarding the management of Dapodik, the results of interviews with dapodik operators indicate that there are no official SOPs or policies that have been set by the school in terms of dapodik management in the school environment. The following is a summary of the results of the interview:

"Actually there is, but there is nothing officially written from the school. All rules come from the center. So, when it comes to making school documents, as a dapodik operator, that's just his job."

At SMP Negeri 4 Gerung, dapodik is managed by one person who is selected as the school operator. From the center, the person is given a username and password. Thus, school data in dapodik can only be accessed by that person. However, teachers also have access to Dapodik, but the information is only to update their personal data and employment status, as explained by the Dapodik operator.

"In general, Dapodik is accessed by operators or admins. But there are 3 parts. So teachers can access dapodik. And actually the one who updates the data for the individual is the teacher, for example the teacher updates the education data or the periodic salary data or the rank data is done by the teacher concerned through his own account. Likewise, the principal who has the right to synchronize or send data is the principal. So the operator has to log in with the principal's account, then it can synchronize. Not through an operator account. There is also information that can be accessed publicly but only limited to school profiles, school status and the number



"So like this, Dapodik supervision is all controlled from the center, then there are submissions to the province. Sometimes there are visits to schools to check the number of students. In fact, there is no need to check directly with schools, right from the center and the provinces can also see the data. But sometimes they come if there is a mistake or problem. Regarding the schedule, there are no definite rules, nothing is determined. Because actually, this data is under control, so they can see and monitor it at any time. They can also monitor it every day because they have a username and password, unless there is a new version of the application."

Then related to the organizational structure of Dapodik management itself, based on interviews with Dapodik operators, the organizational structure in schools in managing Dapodik starts from the principal, operator, head of administration and teachers. Following are the results of the interview:

"Certainly the person responsible is still the school principal. The second is an operator, the third is a teacher or other stakeholder such as TU. Because he is continuous, as I explained earlier, the operator works on Dapodik or enters Dapodik, everything is entered. But there are some that require or log in with the teacher's account in question. So everything that is accessed by the operator is the teacher's account, so it is actually the teacher who has the right or who has the obligation to access his own data. For example, he will enter whether his rank has changed or his periodic salary has changed, or his family data has changed. He actually has his own password to login and access it. "So if the structure is still the principal because he is the one who has access to send the data, the operator only enters it, the teacher enters it, the principal sends it."

Then according to the Principal of SMP Negeri 4 Gerung, the Dapodik section has its own management and regarding criteria, the important thing is to understand IT. Following are the results of the interview:

"Of course, there are several specific criteria that dapodik operators should have to ensure smooth and accurate data management, the most important of which is understanding the dapodik system and understanding the use of IT."

Lack of operational standards (SOP) and structured policies in managing Dapodik in the school environment, especially at SMP Negeri 4 Gerung. Interviews with dapodik operators show that there are no official SOPs or policies set by the school regarding the management of dapodik. Instead, the rules regarding Dapodik management are received from the center. The theory that can describe this situation is the concept of organizational management and hierarchy-based settings. Standard Operating Procedures (SOP) are a series of written guidelines that have been agreed upon regarding the method and time for implementation, the location and actors involved in implementing the SOP, as well as the steps for implementing the organization's activities. Technical SOPs are very detailed standard guidelines regarding activities carried out by an implementer or employee with a certain role or position (Sanoto, 2020). SOP and policies are guidelines needed to regulate actions and processes in an organization. As stated by Sanoto (2020) in his research, SOPs are the basis or direction used to assess the implementation of an institution's performance based on administrative instructions, technical instructions and procedural instructions that are in accordance with the organizational structure within the agency. SOP aims to foster commitment carried out by each work section. SOPs can be applied in all parts of work, both within government units and within educational institution units. In this context, SOPs and policies relating to Dapodik management will help regulate the steps that must be followed to ensure the

integrity, accuracy and security of school data.

The lack of SOPs and policies at the school level indicates dependence on central direction. In the context of dapodik management, policies and SOPs set by the center can direct the process that schools must follow in data management.

However, from the results of the interviews it can also be seen that at SMP Negeri 4 Gerung, even though there are no official SOPs, there are tasks and responsibilities that are delegated to dapodik operators. Dapodik operators are responsible for general data management, while teachers have access to update their personal data. As explained by Annida (2022) in her research which revealed that in order to carry out education plans and carry out educational programs accurately, the principal's duties include selecting and appointing a staff or teacher who has a deep understanding of the DAPODIK database, to act as a staff member. school operator. This task is especially important as these operators will have a role in managing and operating the dapodik system. This concept reflects the principle of decentralization applied in management where certain tasks are given to individuals or units with special expertise, as revealed by Akbar (2023) that management is an art/a series of activities/efforts carried out by individuals or leaders in a organization by involving and utilizing all available resources within the organization effectively and efficiently to achieve the set goals.

Overall, this study illustrates the need for more structured SOPs and policies at the school level in managing dapodik. Creating SOPs and internal policies will help coordinate the efforts of all parties involved, reduce reliance on central direction, and ensure the security and accuracy of school data.

In the context of managing Dapodik at SMP Negeri 4 Gerung, the school principal needs information from Dapodik for various purposes. In this case, the Head of Administration indicated that dapodik operators have an important role in

managing and accessing data at Dapodik. According to the statement by the Head of Administration, teachers have access to enter Dapodik using a password, but only dapodik operators have access rights to edit data, enter new data, or back up data. Therefore, if the school principal requires data from Dapodik, they need to contact the Dapodik operator.

The theory that can be applied in this context is the theory of organizational structure and task distribution. According to this theory, an organization has a hierarchical structure that regulates how tasks and responsibilities are distributed among members of the organization. In the case of Dapodik management, there is a clear division of tasks where dapodik operators are responsible for detailed data manipulation and management, while teachers and other educators have more limited access.

In addition, Dapodik operators also emphasize that data in Dapodik can generally only be accessed by admins or operators appointed by the school. This again illustrates the importance of access control in data management. The theory of information security and data management supports this concept by promoting the principle that sensitive data should be accessed only by those who have the authority and relevant interests.

In the context of Dapodik management, it can be seen that although some general information can be accessed by the public through the official website, more detailed and sensitive information is still managed strictly by dapodik operators and parties who have authority, such as school principals. The application of strict data management principles in accordance with the theory of information management and data protection can also be seen in the Dapodik management practices at the school.

The important role of dapodik operators in managing sensitive data and the duties of principals and teachers in accessing data for specific purposes illustrate the principles of organizational management and

structured task arrangements. The information contained in Dapodik is maintained through periodic updating, which explained by Dapodik operators that it has a pattern of 2 times a year, namely at the end of the semester and at the beginning of the semester. This reflects an effort to maintain accurate and relevant data in the system. The theory of information management and data maintenance indicates the importance of updating regularly to ensure that existing data remains valid and in accordance with current developments.

However, it should be emphasized that supervision and evaluation of Dapodik is carried out directly by the center, in this case the Provincial Education Office. The center has the authority to monitor the Dapodik application in each school through its username and password. This supervision is explained by Dapodik operators as an attempt to check for problems or errors in the data. Management theory of supervision and control in an organizational context supports this concept, in which the center has the authority to carry out supervision to ensure that operations are in accordance with established standards.

Then, related to monitoring and evaluation, there are visitors from the center or province who come to verify data at schools. However, the Dapodik operator indicated that this kind of visitor is not always necessary because the data can be viewed and monitored remotely using a username and password. Monitoring and evaluation management theory emphasizes that sophisticated information technology and systems can enable remote monitoring, which is in accordance with the conditions found in this Dapodik management.

In addition, research also illustrates the existence of uncertainties regarding monitoring and evaluation schedules. This is reflected in the Dapodik operator's statement that there are no definite rules or a set schedule. Flexibility management theory teaches that in complex and changing conditions, organizations need to be prepared to adapt to different situations.

Therefore, in the management of Dapodik, flexibility in supervision is important.

In the context of information management and organization, various concepts such as data maintenance, monitoring, and flexibility are seen to play a role in managing and optimizing the use of Dapodik in the school environment. The results of this study also describe the organizational structure involved in the management of Dapodik at SMP Negeri 4 Gerung. Based on interviews with Dapodik operators, the organizational structure in managing Dapodik involves several positions, namely principal, operator, head of administration, and teacher. The principal has the primary responsibility for managing Dapodik, because he has access to sending data. Dapodik operators have a role in entering data, while teachers have access to entering and managing their personal data, such as changes in rank, salary and family data. This statement reflects the concept of division of tasks and responsibilities in the organizational structure.

Organizational management theory underlines the importance of a clear organizational structure to organize tasks and responsibilities within an entity. In this context, the organizational structure of the school in the management of Dapodik refers to the concept of division of labor.

Furthermore, the statement from the Principal of SMP Negeri 4 Gerung emphasized that there are special criteria that dapodik operators should have. These criteria include an understanding of the dapodik system and an understanding of the use of information technology (IT). This criterion indicates the importance of special skills that are relevant to the tasks carried out by dapodik operators. In the context of human resource management, selecting employees with appropriate criteria will improve the quality and productivity of the team, this is confirmed by research from Yanti (2022) that having teaching staff who have good qualifications and have the ability to use the internet well, then the process jobs that require IT knowledge in the educational institutions where they work will



be smoother. In this way, it is hoped that school management will be more optimal in line with expectations, although there are still several shortcomings that need to be corrected periodically so that development remains sustainable.

Overall, the results of this research show the importance of a well-organized organizational structure in managing Dapodik in schools. Organizational management and human resource management theories support the principles depicted in interviews with Dapodik operators and school principals. Through proper division of tasks and selection criteria, schools can manage Dapodik more efficiently and accurately

## CONCLUSION

Based on the research findings and discussion, several important conclusions can be drawn regarding the role of the Dapodik-based Management Information System in school management and the educational process as a whole. This research reveals that Dapodik has a central role in collecting, storing and managing various data related to schools, students, teachers and other administrative aspects, such as the following:

1. Data Integration and Decision Making  
Dapodik is the center for integrating various data needed in decision making at the school level. Accurate, reliable and up-to-date data in Dapodik ensures that the information used in school management, funding allocation, curriculum planning and monitoring processes has a strong basis. This is consistent with the concept of Information Management which emphasizes the importance of appropriate and relevant information in decision making.
2. The Importance of Accurate Data  
The research results highlight that the accuracy of data in Dapodik has a significant impact on various aspects, including disbursement of BOS funds, teacher certification, and school performance evaluation. Inaccurate data can hinder these processes and

impact the efficiency and effectiveness of school operations. Personnel Management and School Financial Management theories support the importance of accurate data in this context.

3. Dapodik as a monitoring and evaluation instrument  
Supervision and evaluation of schools by related agencies, including the Provincial Education Office, also relies on data from Dapodik. The central ability to effectively monitor and check school data is enabled by Dapodik. This means that the suitability of data in Dapodik with school realities is very important to maintain transparency and accountability in education management.
4. Linkages with Administrative and Academic Procedures  
Dapodik is not only a data collection tool, but also has an impact on administrative and academic procedures in schools. Data management at Dapodik influences the teacher certification process, fund disbursement process, resource allocation, and others. School Management and Human Resources Management concepts support Dapodik's role in integrating data with operational processes.

Overall, this research shows how important Dapodik is as an integral tool in modern school management. By maintaining data integrity, supporting better decision making, and integrating school procedures, Dapodik makes a significant contribution to increasing efficiency, effectiveness, and accountability in the education system

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