

## The Effectiveness of the Management Information System in Improving the Quality of Education at SMP Negeri 1 Tumpaan, South Minahasa Regency

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### Abstract

*This study aims to identify and analyze: (1) the effectiveness of a management information system in improving the quality of education at SMP Negeri 1 Tumpaan, Minahasa Selatan Regency; (2) the supporting factors that enhance the use of the system for improving educational quality; (3) the inhibiting factors that constrain its use; and (4) the contribution of the system to advancing educational quality at the school. The research employs a qualitative method using a descriptive approach. Data collection techniques include interviews, observations, and document analysis conducted at SMP Negeri 1 Tumpaan.*

*The findings reveal that: (1) SIM Dapodik plays a central role in education planning, class group (rombel) distribution, teacher task allocation, BOS fund management, and the implementation of quality improvement programs based on the Education Report Card; (2) the main supporting factors include operator competence, leadership support from the principal, adequate digital infrastructure, and technical training; (3) usage obstacles include unstable network access, lack of initial training, and delays in data collection from internal stakeholders; (4) the contribution of SIM Dapodik is evident in the school accreditation process – even though it has not yet significantly impacted accreditation scores, the data stored in the system is essential for assessor verification and institutional validation. The system also encourages parental participation in updating student data and fosters effective communication between school and home. Dapodik's data management is executed systematically and with care by the school operator, with password access kept confidential and records archived both manually and digitally. These practices have resulted in no reported concerns from teachers or parents regarding data leakage, indicating a high level of user trust. Overall, SIM Dapodik serves as a strategic instrument in data-driven educational governance oriented toward continuous quality improvement.*

**Keywords:** *Management Information System, Educational Quality*

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## INTRODUCTION

Education is a sector that plays a vital role in the development of a nation. Improving the quality of education is highly expected in order to achieve optimal educational goals. The implementation of information technology and management information systems has become a common trend in the education sector. The National Education System Law (Sisdiknas Law) No. 20 of 2023 defines education as a conscious and planned effort to create a learning atmosphere and learning process so that students actively develop their potential to possess spiritual and religious strength, selfcontrol, personality, intelligence,

noble character, and the skills needed by themselves, society, the nation, and the state. Ki Hajar Dewantara explained that education is the guidance in the process of growing up for children. He stated that education means guiding all the natural forces present in children so that, as humans and members of society, they may attain safety and happiness to the highest possible degree (Dewantara, 2013:14-15).

Mulyono (2018) states that a school management information system is a process of managing information effectively, starting from procurement, usage, storage, and dissemination of information systems within schools. It serves to facilitate staff in managing various school management and administrative activities that can be accessed online. The rapid development of information technology today requires the education sector to adapt and utilize technology to improve the quality of services and the learning process. One technological implementation is the Management Information System, which plays a crucial role in managing data and information within educational institutions. Management Information Systems enable the effective and efficient collection, processing, storage, and distribution of information, thereby supporting accurate decision-making by school management.

The implementation of management information systems (MIS) in education offers several significant benefits, including: the optimization of administrative processes, reduced staff workload, allowing staff to focus more on core educational activities, improved communication by facilitating interaction among students, parents, and teachers, and the creation of a more collaborative and transparent environment. MIS also supports personalized education by enabling educators to tailor teaching methods according to individual student needs, thereby enhancing learning effectiveness (Mulyono, 2018).

Management information systems are not merely supporting tools; they can serve as key factors in helping educational institutions compete in the global era. The benefits of implementing MIS include increased efficiency and effectiveness of performance and educational services, reduced human error, cost savings, and better use of space for data archiving. However, field realities show several obstacles: a lack of skilled human resources in information technology, inadequate infrastructure, and insufficient training for school operators. These are barriers to effective MIS implementation. Yet, accurate and efficient data management is essential to support informed decision-making, educational program planning, and school performance monitoring and evaluation, all aiming to improve the quality of education (Laudon, 2020).

The implementation of Management Information Systems (MIS) provides various benefits (McLeod, 2007), including: a) **Increased Operational Efficiency:** Through the automation of business processes, routine tasks can be completed more quickly and with minimal errors. b) **Decision-Making Support:** MIS provides the necessary data and reports to make better and more informed decisions, c) **Improved Customer Service:** Integrated information allows organizations to respond to customer needs more effectively, d) **Competitive Advantage:** Organizations that utilize MIS can be more adaptive to market and technological changes.

Education quality is a concept with multiple definitions depending on different perspectives, whether from legislation, international organizations, or education experts. In Indonesian law, the quality of education is governed by Law of the Republic of Indonesia Number 20 of 2003 on the National Education System, which serves as the main legal foundation for all educational regulations in Indonesia. Although this law does not explicitly define "education quality," it emphasizes that education is a conscious and planned effort to create a learning atmosphere and learning process in which students actively develop their potential. Article 3 of Law No. 20 of 2003 outlines the goal of national education: to develop the nation's intellectual life and to shape Indonesian individuals who are fully developed—faithful and devoted to God Almighty, of noble character, healthy, knowledgeable, patriotic, independent, and responsible citizens. In recent years, the government has made efforts to implement Management Information Systems (MIS) as one of the solutions to improve the quality of education. The implementation of MIS is expected to help schools, especially those in need, manage data more effectively, enhance transparency, and support better decision-making processes. Over the past five years, school accreditation assessment standards have undergone significant changes with the introduction of the Accreditation Instrument for Educational Units (IASP) (BAN PDM, 2024). According to the Decree of the Minister of Education and Culture of the Republic of Indonesia No. 1005/P/2020 regarding the Criteria and Instruments for Primary and Secondary Education Accreditation, four main components are emphasized : 1) Graduate Quality – assesses students’ competency achievements based on established standards, 2) Learning Process – evaluates planning, implementation, and assessment of learning, 3) Teacher Quality – assesses teacher qualifications, competencies, and professional development, 4) School Management – evaluates leadership, planning, resource management, and stakeholder engagement.

These components aim to enhance the relevance and effectiveness of the accreditation process in driving improvements in educational quality in Indonesia (Mendikbud, 2020).

SMP Negeri 1 Tumpaan is one of six junior high schools in Tumpaan District, South Minahasa Regency, and had the largest number of students (434) in the 2024/2025 academic year. In an initial interview, the Principal of SMP Negeri 1 Tumpaan stated that the school had undergone accreditation as scheduled by the Ministry of Education and Culture in 2010, 2016, and 2021. The school received an A accreditation status in 2010, and B accreditation status in both 2016 and 2021. According to the principal, the decline in accreditation status occurred because the school was unable to provide the data requested by the assessors during the accreditation process—even though the required data were available in the Dapodik (Basic Education Data) Management Information System. Furthermore, the school did not have a dedicated operator to manage and operate the Dapodik system.

One of the causes of the low accreditation status obtained by schools is the effectiveness of Dapodik (Education Data System) usage. Ideally, by using the Dapodik management information system effectively, a school’s accreditation status can be improved because all the data required for accreditation is available in the school’s Dapodik system. The school operator responsible for managing the

Dapodik SIM is a subject teacher. This often leads to neglect in teaching, as at certain times, the operator is fully focused on inputting Dapodik data. Based on this issue, the author focuses the research on the effectiveness of using the Dapodik Management Information System in improving the quality of education at SMP Negeri 1 in South Minahasa Regency. This research analyzes supporting and inhibiting factors as well as the contribution of Dapodik SIM in enhancing the quality of education at SMP Negeri 1 Tumpaan, South Minahasa Regency.

## **METHODS**

The researcher employed a qualitative research method with a descriptive approach by conducting in-depth observations to determine the effectiveness level of the Management Information System (MIS) usage, the challenges faced by school operators, how the use of MIS contributes to improving the quality of education, and the factors that influence the effectiveness of MIS implementation which impact educational quality. This was also supported by the results of interviews and documentation. Qualitative research is a research procedure that generates data in the form of written or spoken words from people and observable behavior (Margono, 2007, p. 36). Information sources were obtained from five informants: the Principal, School Supervisor, Vice

Principal, Teacher, and School Operator. The interview results were then analyzed using the NVivo application to process the data in accordance with the characteristics of qualitative research, which involves non-numerical data, such as text or visuals. The analysis results were presented in graphs and diagrams to assist the researcher in analyzing qualitative data such as interviews, observations, documents, and social media (Proyatni, 2020).

## **RESULT AND DISSCUSSION**

### **The Effectiveness of the Dapodik Management Information System (MIS) in Improving the Quality of Education at SMP Negeri 1 Tumpaan**

1) As an initial source of information for school planning, where the Dapodik MIS serves as the primary reference in designing the School Work Plan (RKS) and the School Activity and Budget Plan (RKAS), determining the number of learning groups and new classes, managing BOS (School Operational Assistance) Regular and Performance funds, scheduling and distributing teaching hours (JPL), and determining student participants for the ANBK (National Assessment of Education Quality). This is in line with what was stated by Lubis & Aulia (2024), who noted that Dapodik accelerates academic administrative processes such as recording student attendance and grades. 2) As a source of data for strategic decision-making, including comprehensive data on students, teachers, education personnel, and infrastructure. It synchronizes with external systems such as the Civil Registry and the National Civil Service Agency to avoid information inconsistencies, particularly in administrative management, aid allocation, and education performance evaluation. It also supports the validation of student identity documents, which must be conducted from the time the student enters school. 3) As a source of administrative and data validation, which involves updating and verifying data. School policies refer to data that has been verified either internally or by the Department of Education. The operator is responsible

for updating student, teacher, and infrastructure data in accordance with the dynamic conditions within the school. The operator also validates student identity documents—such as Family Cards, Birth Certificates, and Child ID Cards (KTP Anak)—which must be stored and matched with the data in the Dapodik system to avoid issues during assessments, aid distribution, or school evaluations. 4) As a source of data for evaluation and monitoring, to map the school's physical condition comprehensively, including classrooms, supporting facilities, and land. This information becomes the basis for decision-making related to infrastructure development and the fulfillment of educational service quality standards. 5) As a source of data for mapping facilities and infrastructure, including data for the Education Report Card mapping based on ANBK results, data for program evaluation and school intervention, as well as data for administrative accountability and government monitoring. The data retrieved from the Dapodik MIS to improve the quality of education at SMP Negeri 1 Tumpaam includes: Student Data, Teacher and Education Personnel Data, Infrastructure Data, Student Learning Group Data, and Activity Plan Data.

**Supporting Factors of the Dapodik Management Information System (MIS) in Improving the Quality of Education at SMP Negeri 1 Tumpaam : 1)**

**Operator's Competence and Experience:** SMP Negeri 1 Tumpaam has been managing Dapodik since 2015, and even prior to that, had been involved in BOS (School Operational Assistance) data management. Although the operator comes from a non-technical background, namely as an English teacher, they have demonstrated proficiency and resilience in independently managing the system.

2) **Principal's Support:** The school principal gives full trust to the operator in managing the data while still maintaining communication and monitoring certain strategic aspects. This aligns with research by Sutrisnaniati (2024), which states that Dapodik and information technology support the learning process and improve the effectiveness and efficiency of educational data collection. 3)

**Availability of Supporting Infrastructure:** The system is integrated with the ARKAS application for fund management and budget lanning. This facilitates the operator, who also serves as the school treasurer, in ensuring data consistency across systems. 4)

**Availability of Network and Digital Devices:** The availability of computer devices (laptops and dedicated PCs for the operator) and a stable internet connection are essential assets in supporting the operation of the system. 5)

**Training and Self-Learning:** The operator engages in self-directed training to better understand the Dapodik application. 6)

**Collaborative Support among Regional Operators:** Collaboration among operators at the regional level serves as an effective strategy to address technical challenges and exchange information.

**Inhibiting Factors in Improving the Quality of Education at SMP Negeri 1 Tumpaam** The inhibiting factors in improving the quality of education include:

1. Technical and Network Issues, which consist of the following themes:
  - a) Unstable internet connection, and b) Slow data input.
2. Time Management and Workload, which consist of the following themes: a) Dual roles of the operator,
3. b) Fatigue, and

4. c) Disruption of teaching processes.
5. Limited Training and Human Resources, which consist of the following themes:
  - a) Lack of formal training, and b) Inadequate competence.
6. External Factors and Support, which consist of the following themes:
  - a) Delayed data submission, and b) Low individual awareness.

The use of the Dapodik Management Information System at SMP Negeri 1 Tumpaan faces various interconnected challenges. These range from technical problems such as slow internet connectivity and data synchronization that relies heavily on network stability, to limited training and human resource competence, which affect both teachers' and operators' understanding and participation. A heavy workload due to the operator's dual roles and pressure from reporting requirements exacerbates the situation, especially when internal support is suboptimal—for example, delays in data submission from teachers and a lack of parental awareness regarding the importance of student documents. These combined factors create systemic obstacles in the implementation and effectiveness of the Dapodik system. This is in line with Dewi et al. (2024), who state that schools in various regions face a wide range of challenges, from limited resources and inadequate infrastructure to issues in data and information management—similar to what is experienced at SMP Negeri 1 Tumpaan.

### **The Contribution of the Dapodik Management Information System (MIS) in Improving the Quality of Education at SMP Negeri 1 Tumpaan**

The Dapodik MIS contributes to improving the quality of education at SMP Negeri 1 Tumpaan in the following ways :

1. **Support for School Accreditation:** Dapodik serves as the basis for accreditation. However, the school has faced challenges during the accreditation process. School documents show that in 2010, the school received an "A" accreditation rating. However, in 2016 and 2021, the accreditation rating dropped to "B." Although Dapodik data has not yet played a significant role in accreditation scoring, informants in this study reported that Dapodik data is used by assessors as an initial reference for verifying the actual conditions on-site. This is in line with the Accreditation Guide (BAN PDM, 2024), which explains that accreditation is carried out by monitoring and analyzing data and information from available sources. The information used is derived from the School Profile, Education Report Card, and the Basic Education Data (DAPODIK) or Education Management Information System (EMIS). The accreditation instruments have been aligned with these data sources.
2. **Contribution of Dapodik MIS to Parental Involvement and Roles:** Parents participate in updating student data and show awareness of the importance of data accuracy. Dapodik has become a communication channel between the school and parents, in which homeroom teachers actively inform parents about student data issues and coordinate necessary corrections.
3. **Contribution of the Dapodik MIS in Facilitating Communication Between the School and Parents:** When invalid or residual student data is found, the

school promptly contacts parents to make corrections. Dapodik assists teachers—especially homeroom teachers—in establishing systematic communication with parents.

4. **Ensuring the Security of School Funds and Building Trust in Data Management:** Data protection procedures in the use of Dapodik MIS at SMP Negeri 1 Tumpaan have been carried out responsibly and effectively. Data security is a top priority, demonstrated by the full trust of the principal in the operator to manage sensitive data related to students, teachers, and education personnel. The school operator maintains the confidentiality of the system by not sharing the Dapodik password with others and by regularly updating the system in accordance with official instructions from the central Dapodik team through official links. This is in line with Hunim & Aimah (2024), who state that the data managed within the Dapodik MIS is highly sensitive and must be well protected to prevent potential data leaks that could harm the institution

## CONCLUSION

Based on interviews with the principal, vice principal, teachers, school operator, and supervisor, several important findings were obtained regarding the effectiveness, supporting factors, and obstacles in the use of the Dapodik Management Information System (SIM Dapodik) at SMP Negeri 1 Tumpaan. The researcher draws the following conclusions : 1)SIM Dapodik plays a crucial role as a reliable and accurate school data center. Data from Dapodik is used in strategic decision-making, such as determining the number of learning groups, allocating teacher assignments, managing BOS (School Operational Assistance) funds, and implementing quality improvement programs based on the education report card. 2) The principal's trust in the operator, communication support between the school and parents, and the use of Dapodik for student data validation are key factors that support the optimal use of Dapodik. 3) Several obstacles are still encountered, such as limited internet connectivity, system slowdowns during peak hours, lack of training for new teachers or operators, and delays by teachers and parents in completing administrative data. 4) Although Dapodik has not yet had a direct impact on increasing accreditation scores, the data stored within it is highly important in the accreditation and verification process by assessors. The system also encourages parental participation in completing their children's data and fosters effective communication with the school. Dapodik data management is carried out systematically and carefully by the operator. Important student and teacher data is kept secure, system passwords are not shared, and data archiving is done both manually and digitally. No concerns were found among teachers or parents regarding the risk of data leaks, indicating a high level of user trust.

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