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**The Role of SIM in Increasing PPDB**

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**Abstract**

Management Information Systems (MIS) in general have an important role in the world of education. Meanwhile, PPDB is often carried out online in many regions to simplify the process and increase transparency. The education Management Information System (SIM) can help parents of students in finding information related to New Student Admissions (PPDB). SIM can also provide other benefits for parents, such as making it easier to monitor children's absences, making it easier to monitor children's grades, and getting information provided by the school. The aim of this research is to review previous research that examined school SIMs, as well as developing school SIMs to increase PPDB. The method used is Systematic Literature Review (SLR), which is a systematic research method for collecting, critically evaluating, integrating, and presenting findings from various research studies about research questions or topics of interest.

**Keywords:** Management Information System, PPDB

# INTRODUCTION

The School Management Information System is a digital platform that helps schools improve the quality of services and learning infrastructure. This system connects schools with internal and external parties, such as parents and the surrounding community. With online access, all related information can be obtained easily and accurately. In addition, this system allows more efficient interaction between parties related to the school such as teachers, students and parents. Information can be accessed at any time via various devices such as cellphones, laptops, smartphones, without having to come directly to school, as long as the device is connected to the internet.

The definition of Management Information Systems is a collection of interacting information systems that have the right to collect and manage data to provide useful information for all levels of management in planning and control activities. (Maulana & Ikasari, 2023). Meanwhile, the Education Management Information System is a combination of human resources and information technology applications to select, store, process and retrieve data in order to support the decision-making process in the field of education. These data are empirical data or actual data/facts that are true. it really exists and can be confirmed as true. (Rusdiana, 2019). Based on research results from Sutarto (2023), it is stated that the implementation of management information systems in education still has challenges and obstacles. However, in general, the implementation of management information systems in schools has made a positive contribution in improving the quality of education (Heidiani Ikasari, 2023).

The role of the Management Information System (SIM) in PPDB (New Student Admission) is very important to ensure the selection process is efficient, transparent and accountable. The following are some of the main roles of SIM in PPDB.

**Pendaftaran Online**

Facilitating prospective students to register independently through the online portal is one of the important roles of Management Information Systems (SIM) in PPDB. Prospective students or parents can access the registration portal at any time and from anywhere using devices such as a computer, laptop or smartphone with an internet connection. This reduces the need to come directly to school to register. The online PPDB portal allows prospective students to fill in complete personal data digitally, choose a destination school based on zoning, affirmation, achievement, or other paths, upload required documents (KK, report cards, certificates, etc.) without needing to submit them physically . With the online portal, the registration process becomes faster, avoids long queues at school, and reduces the risk of losing files or documents. Data entered by prospective students is directly entered into the central system. This system is often connected to databases such as Dukcapil for automatic verification, for example of residential addresses and population data. Registration portals are often equipped with guides, FAQs, and other information for prospective students or people.

Parents understand the registration stages. This information helps minimize errors during the registration process. Prospective students can choose schools according to their preferences (based on zoning, affirmation, or achievement), and the system will help match data with applicable quotas or regulations. The advantages of online PPDB include convenience, no need to bother coming to school to take forms or submit documents, time and cost efficiency, reducing travel time and transportation costs to register, wide access, can reach all areas, especially in areas that have many schools, Paperless encourages the use of environmentally friendly systems by reducing physical documents. This facility creates a more comfortable and structured experience for prospective students and parents in undergoing the PPDB process.

Reducing queues and manual bureaucracy in schools is the key to creating a more efficient, transparent and friendly process for all parties. Create a special portal or application for PPDB registration. Prospective students can fill out forms, upload documents, and choose the registration path (zoning, affirmation, achievement, etc.) online. Make sure the system provides automatic confirmation once the data is received to avoid worrying participants. Implement a document verification mechanism such as scanning your KTP, KK, or other supporting documents that can be verified automatically. Use an online queuing system where prospective students or parents can choose their arrival time to school (if in-person verification is required). This virtual queue can be displayed via an application or website. Distribute arrival schedules based on region or order of registration so that participants don't have to gather in large numbers on the same day. Use computer algorithms for value-based selection, zoning, or other criteria, eliminating manual bias. Inform the selection results through the system automatically. Send notifications about selection results via SMS, email or application. If a school does not have the resources to build a digital system, partner with a technology provider who has experience handling digital PPDB. Set up a special area at school for parents or prospective students who don't have internet access to get registration assistance. School officials can help them fill out the online form directly. Management with management information systems will help in analyzing the data needed to carry out management functions (Musfirah, 2021).

Integrating data directly into a central server to make management easier is a strategic step to increase efficiency, accuracy and transparency in managing new student data. Use a cloud-based server to store and manage PPDB data. The cloud allows real-time data access from various locations without local hardware limitations. Build a system that can be used by all schools in one region or city to enter PPDB data, such as the system managed by the Education Office. determine standard data formats that must be used by all schools (e.g. formats for student personal data, grades, supporting documents). Implement automatic validation on the system to ensure uploaded data meets standards and is free from errors, such as duplication or incomplete information. Build an API (Application Programming Interface) to enable the transfer data from the school's local system to the central server in real-time or periodically. Use an automatic synchronization mechanism so that every data entered at school is immediately updated on the central server without the need for manual upload. Use encryption to protect student data during the transfer process from the school to a central server. Provide differentiated access based on role, such as central administrator, school operator, or other relevant parties, to prevent data misuse. Implement an automatic backup system to prevent data loss due to technical problems. Provide a web-based dashboard to monitor PPDB data at all schools in real-time, such as the number of applicants, selection status, or admission path statistics. The system can generate automatic reports for management needs, such as reports on the number of new students per school, zoning, or selection pass rates.

**Data Processing and Verification**

Manage prospective student data, including personal data, academic grades and supporting documents. Carry out automatic verification of data, such as Population Identification Number (NIK), data on distance from house to school (in zoning lines), and authenticity of documents.

**Ranking and Selection**

Help the committee calculate selection scores based on criteria (achievement, distance, affirmation, etc.). Performs ranking automatically, thus avoiding manual errors. Guarantees fair selection because the system works based on predetermined rules.

**Transparency**

Ensure that the PPDB process is open, where parents and prospective students can monitor the selection results in real-time. Information such as list of applicants, rankings and quotas are available on the portal to avoid speculation or cheating.

**Administrative Efficiency**

Reduces the burden on school administration because all data is centralized in one system. Minimizes the risk of losing physical documents. Speed ​​up the process of reporting selection results to the education office.

**Data Integration**

Connect with other agencies, such as: Department of Population and Civil Registry (Dukcapil): Verify addresses and population data, Department of Education: Alignment of policies and school quotas. Ensure data suitability so that no manipulation occurs.

**Monitoring and Evaluation**

Providing complete reports to the education department and government regarding the implementation of PPDB. Providing data for evaluating and planning future education policies.

 **Previous Research**

Research similar to this research was conducted by Danang Dwi Prasetya (2023), with the title Educational Management Information Systems in Increasing New Student Enrollment; next by Zulfikar Sembiring, Susilawati and Muhathir (2020), with the title Making School Management Information System Applications for Student Admission Services New; then Muhammad Ismail and Renaldi Yulvianda (2022), with the title Implementation of the New Student Admission Information System (PPDB) at SMA N 6 Tanjung Jabung Timur.

 **Research Objectives**

Based on several research results conducted by several of the authors above who have built a management information system to support the smooth PPDB process in their respective schools, in this research, researchers will provide concrete evidence of the important role of SIM in increasing PPDB, so that efforts are needed perfect the SIM so that you can find out the strengths and weaknesses, as well as the challenges and threats of the system, in improving new students.

**Research Limitations**

This research is limited to discussing SIM to support and improve PPDB, and this research only discusses and reviews several previous studies that are in accordance with the theme of this research.

 **RESEARCH METHODS**

The method used is Systematic Literature Review (SLR), which is a systematic research method for collecting, critically evaluating, integrating, and presenting findings from various research studies about research questions or topics of interest. (Arissona Dia Indah Sari et al., 2023). Systematic Literature Review (SLR) is a research method used to collect, critically evaluate, integrate, and present findings from various literature that are relevant to a particular research question or topic. This method is carried out systematically and transparently, following certain steps to ensure valid and reliable results. SLR is often used in various fields such as education, technology, social sciences, health, and so on. The following are the main stages in conducting research using the SLR method:

 **Formulation of Research Questions**

The initial step is to determine a clear, specific and relevant research question or research problem. For example: "How can online PPDB system integration improve school management efficiency?", "What are the challenges in implementing a central server for PPDB data integration?".

Tools: PICO Framework (Population, Intervention, Comparison, Outcome) to formulate questions

 **SLR Planning**

Search database: Determine the database used, such as Scopus, PubMed, IEEE Xplore, or Google Scholar. Search keywords: Use a combination of keywords, such as "PPDB online", "data integration", "school management".

**Literature Search**

Scientific journal databases: Scopus, Springer, Elsevier, IEEE. Gray literature: Theses, technical reports, or official government documents. Tools: Use tools like Zotero or Mendeley to manage references

 **Study Selection**

Screening Stage, Evaluate the abstract and title to ensure relevance. Use the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) diagram to visualize the selection process.

 **ata Extraction**

Identify important information from the selected studies. Use tools such as spreadsheets or text analysis software (NVivo, ATLAS.ti) for data management.

 **Analysis and Synthesis**

Analyze findings, compare and integrate relevant study results. Identify patterns, trends, or gaps in research.

Synthesize findings, combining study results narratively or through quantitative methods such as meta-analysis (if possible).

 **Reporting Results**

Present findings in a structured manner, including introduction, SLR research methods, results and discussion, conclusions and recommendations for further research.

**RESULT AND DISCUSSION**

**Research Results**

**Main** **Technical Features in the PPDB SIM Portal**

**1. Account Registration**

a. Prospective students or parents must create an account first

b. Usually uses a Population Identification Number (NIK) as a unique identity

c. Equipped with a security system, such as OTP (One-Time Password) which is sent to email or cellphone number to prevent data duplication

**2. Digital Forms**

a. There is a form to enter personal data such as name, address, NIK, family card number, school origin, report card/exam scores, and the chosen registration route (zoning, affirmation, achievement, or transfer of parents).

b. The system will automatically check the completeness of the data before the form can be sent

# 3. Upload Document

# a. Feature for uploading required documents such as Family Card (KK), certificate of achievement (if achievement route), parent transfer certificate (if transfer route), report card and diploma (if required.

# b. The system supports document formats such as PDF, JPG, or PNG with a certain maximum size (for example 1-2 MB per file).

# 4. School Selection

# a. The portal provides the option to select the destination school

# b. Equipped with features, zoning maps show schools that are within a certain radius of prospective students' home addresses, school quotas, information on the number of seats available for each pathway at the destination school, predicted opportunities, some systems provide estimates of the chances of being accepted based on initial data from other applicants.

# 5. Automatic Verification Integration

# a. Connect with official databases such as Dukcapil to validate, NIK (matching name and address). Address based on Family Card for zoning routes. The system can check the authenticity of uploaded documents, for example with OCR (Optical Character Recognition).

# b. Automatic Ranking, after registration is closed, the system automatically processes data to rank applicants based on criteria such as distance from home to school (zoning route), report card or certificate grades (achievement pathway), suitability of affirmation documents (affirmation pathway), prospective students can monitor rankings them in real-time.

# c. User Dashboard, each user has a dashboard to check registration status (passed verification, pending, or rejected), view temporary and final selection results, print proof of registration,

# d. Helpdesk and Live Chat, portals are often equipped with help features such as, FAQ (frequently asked questions), live chat services to help prospective students or parents who experience technical difficulties, a call center or official email available for complaints,

# e. Announcement of Results, selection results are announced directly on the portal, where users can see the status of whether they are accepted or not at the school of their choice, if accepted, users can print proof of acceptance for the re-registration process at the school.

# Supporting Technology

# 1. Cloud Computing, benefits of centralized data storage, easy access, scalability and data security. Platforms such as Google Cloud or AWS are often used to support this infrastructure, supporting real-time access from various devices without having to rely on local servers.

# 2. Database Management System (DBMS), DBMS such as MySQL, Postgre SQL, or MongoDB are used to manage participant data, such as names, grades, and other supporting documents, supporting large data management quickly and accurately.

# 3. Data Security Technology, Encryption: Protects participant registration data from the threat of information leaks, SSL/TLS secures connections between users with a server, two-factor authentication (2FA) system to safeguard user accounts. It is hoped that future information system design will help in the asset management process to minimize existing problems in an integrated manner.

# 4. Payment Gateway (if there is a registration fee), to facilitate online payments via bank transfer, e-wallet or credit card.

# 5. Artificial Intelligence (AI) and Machine Learning, used for automatic selection based on certain criteria, such as test scores, zoning, or achievement, detecting potential duplication or anomalies in registration data.

# 6. Mobile Application, PPDB application based on Android or iOS to make it easier for parents/guardians of students to register, monitor status and receive notifications.

7. Geolocation technology, to support the zoning system, geolocation is used to determine the distance between the participant's address and the target school.

8. Digital Communication System, Email & SMS Gateway, provides automatic notifications about registration status, document verification, or selection results. Chatbot or Helpdesk uses AI-based chatbots to help answer common questions during the registration process.

9. Data Analytics, real-time dashboard to monitor the number of registrants, verification status and other data. Technologies such as Google Analytics or Power BI can be utilized.

# CONCLUSION

1. With SIM, the PPDB process becomes faster, more accurate and more accountable. This not only makes things easier for schools and education departments, but also provides legal certainty and easy access for the community.

2. By implementing these technologies, online PPDB can increase efficiency, transparency and comfort for prospective students and organizers

3. All information related to registration must be clear and easy to access, such as schedules, quotas, selection processes and selection results must be announced openly

4. The online system must be accessible to all levels of society, including in areas that have limited internet networks.

5. The online registration process should be easy to understand, even for less tech-savvy users.

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